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EDITORIAL

THE TORONTO MEDICAL SCHOOL

AS described elsewhere in this issue, machinery has existed in this province for the licensing of medical practitioners from the year 1788 onwards. At this time little or no teaching was available. Regular Medical Courses were begun in 1844, when on the 15th of January the inaugural lecture of the Medical Faculty of King's College, the then Provincial University, was delivered. Within ten years the University abolished the Medical Faculty on the alleged ground of supposed popular sentiment against State aid for a lucrative profession, the Faculty being on a par with Arts and Law in drawing eight to nine thousand dollars annually from the province.

From 1853 to 1887 we had the era of Proprietary Medical Schools, and Parliament manifested great inconsistency in bestowing upon them $65,000 during the period up to the year 1871, when all grants ceased. Of these schools, there were no less than four in existence at one time. The majority of the original staff continued as members of the Toronto Medical School, but Dr. Rolph, the founder, organized another of his own. Like the Trinity and Victoria Medical Colleges, these were affiliated with several Universites, but were not facultes of any. Successful efforts on the part of the University of Toronto to raise the standard of examination in 1882 resulted in a prompt drop in the number of the graduating class from thirty-two to fifteen, and eventually ten. The schools were of necessity weak on the expensive scientific side of their teaching and unable to cope with the situation.

Through the establishment of a teaching Faculty of Medicine, in 1887, medical education in Ontario entered upon a new era, and the expensive equipment of the University of Toronto in biology, physiology, chemistry and physics was put at the service of the Medical Faculty.

Trinity Medical College, however, now more closely associated with the University of Trinity College, maintained a very strong independent position, with graduating classes of some seventy members, for another six years.

The November issue of the *Canadian Practitioner and Review,* for 1903, is memorable in the eyes of all but the more recent of Toronto's medical graduates. The number is devoted to the Opening Exercises of the first session after the amalgamation of the Medical Faculties of the Universities of Toronto and Trinity College and ceremonies in connection with the new building.

The formal opening of the Laboratories took place on October 1st, when Professor Sherrington of the University of Liverpool, England, delivered an inaugural address, and the buildings were formally declared opened by President Loudon. Mentioned as being among other distinguished guests are the names of the Lieut.-Governor, the late Sir Wm. Osler, then Professor Osler of Johns Hopkins University, Professors Adami of McGill, Barker of Chicago, McMurrich, then of the University of Michigan, and the late Professor Goldwin Smith, to whose wife Toronto owes its famous Art Gallery, the Grange.

Professor Sherrington's address was delivered on the afternoon of October 1st, the Dean of the Faculty of Medicine, Dr. Reeve, having previously entertained the visitors at luncheon. On the evening of the same day Professor Osler delivered the opening lecture of the session, before a large body of students assembled in *the University Gymnasium.*

On the morning of October 2nd, addresses were delivered to the students in the new lecture theatre; in the afternoon a special University Convocation was held, at which the degree of LL.D. was conferred upon Professors Sherrington and Osler and four others.

A study of the original plans of the Medical Building reveals some interesting changes. The Department of Pathology occupied the rooms on the ground and first floors, now used by the Connaught Laboratories, as well as the front of the first floor and the present Physiological machine shop, with the room north of it. The Pathological Museum was situated immediately below this, in the long room on the ground floor just east of the main corridor, now well-known by virtue of the mystic polysphygmograph. The corresponding room on the second floor, now the advanced Biochemical laboratory, housed the Bacteriological laboratory. The Secretary's office was designed for the Dean's room. Special Research was to be adequately accommodated in the fifteen small cubicles west of the three lecture rooms, one of the latter, by the way, that in the basement being known as the Assembly Hall. The Department of Zymology has usurped a very commodious Students' Reading Room. The Ladies' Room was then a very well equipped apartment. Hygiene has the lockers in the basement. Additional locker rooms and lavatories were placed in the sub-basement. The Department of Pharmacology was conspicuous by its absence, its present quarters being occupied by no less an institution than the Provincial Board of Health Laboratories. From the undergraduates' standpoint, the many subsequent necessary changes seem to have been very much for the worse.

It is with great regret that it has been necessary to considerably cut down Professor Osler's address, in order to reprint it in another part of this issue, but even in its abridged form, it is very well worth a careful perusal.

THE GALL-BLADDER—LATE POST-OPERATIVE COMPLICATIONS

THE frequency with which the gall-bladder is removed by the surgeon has been a point of warm criticism of recent years.

Clinically, the very close association of chronic gall-bladder disease with gastro-intestinal disorders has long been studied, but the precise physiological relationship of the normal gall-bladder to the normal stomach has only recently been satisfactorily explained.

The work of Rous and McMaster has demonstrated one very important function of the gall-bladder, viz., that of concentration of bile. The absorptive properties of the mucous membrane of the gall-bladder are believed to accomplish the reduction of the total volume of bile produced to one-tenth. According to the work of Mann, who has shown that practically no bile escapes which is produced by the liver during the period of fasting, it is probable that this property of concentration is even greater than cited.

Not only does the gall-bladder stimulate liver activity to the production of bile during periods of rest of the gastro-intestinal tract but it takes on active expulsive contractions synchronously with the movements of the stomach on the intake of food. This is confirmed by the sequence of symptoms related to the gall-bladder at the beginning of the meal.

With this relationship it is easy to see how a break in the cycle due to infection in the gall-bladder causes a widespread disorder in liver and stomach function. Up to date there has not been found any internal disinfectant which will sterilize an infected gall-bladder. Some authorities claim this property for the salicylates and urotropin but the beneficial result from these drugs is very doubtful. Realizing that inflammation of the gall-bladder tends to become chronic, and once so is always chronic, the best medical authorities confirm the surgical opinion that the diseased gall-bladder should be removed as soon as there are sufficient clinical signs and symptoms to establish a diagnosis.

Whether the operation be one of drainage or removal is left for the surgeon to decide in each case which presents itself. The immediate post-operative complications depend on many factors which have repeatedly been discussed. A later syndrome of gastro-intestinal symptoms, occurring after some months or as long as three or four years post-operative is not uncommon. When this does occur it is most humiliating to the surgeon because he can offer no really satisfactory explanation to the patient for such symptoms. Such instances are on the records of our best surgeons, and rarely are they attributable to any omission on his part. The condition in which he leaves the operating field: any devices which he may use to prevent adhesions would seem to have no good effect in reducing the frequency of recurring symptoms. Return to the old site and removal of adhesions is followed by even more distressing results in time, as has so often been proven. The cause is entirely mechanical. The distress is due to an acute kinking of the duodenum from adhesions and is revealed by symptoms of gastric obstruction after a heavy meal. Hiccough is a frequent accompaniment. The patient gets immediate relief by gastric lavage, but no other palliative measures are of value. Permanent relief can only be secured by interference at some other point in the cycle. Many cases are now reported in the records presenting these symptoms in which a posterior gastro-enterostomy was done with absolute relief. This procedure is then worthy of consideration in obstinate cases.

SOME CAUSES OF OBSCURE PYREXIA*

A VERY interesting and practical address was given to the Post-graduate Medical Association by Sir Thomas Horder on the subject of Pyrexia without adequate signs and symptoms. This subject is especially interesting because it is one which the physician is commonly forced to face. His address was mainly confined to conditions accompanied by subacute or chronic pyrexia. The pyrexia associated with the group of acute infections is of interest, but diagnosis is not accompanied by difficulties such as exist in the former instances. There are many acute febrile diseases, mainly of the acute infection variety in which it is quite impossible in the majority of instances to state definitely the nature of the illness unless, and until certain signs and symptoms have developed—and rarely is the physician expected, in any intelligent community, to commit himself without the confirmatory presence of the signs and symptoms which develop. The subject of the more obscure pyrexias, *i.e.*, the subacute or chronic types, however, is more interesting because it is one which taxes the resources of the physician to the utmost to account for them. Some of the possible causes of obscure pyrexia were considered.

1. *Pyrexia of Nervous Origin.*—Sir Thomas Horder considers the possibility of a mild grade of pyrexia which may be the expression of an unstable nervous system. Certain nervous patients of neurotic type may possess an unstable thermo-taxic mechanism. The relatives or friends of such patients may bring charts showing a mild pyrexia lasting week after week. On careful physical examination one may not find anything adequate to explain the elevated temperature—except that the patients are highly nervous, and their instability becomes more evident the longer the pyrexial state goes on, and the more numerous the investigations that are undertaken. In his experience he believes that the nervous child "puts up temperatures" more readily than the nervous adult. He states that in cases of these types it matters little whether we take the view that pyrexia is an expression purely of an unstable nervous system, or whether it is that, *plus* the operation of some feebly pathogenic organism. In these cases the treatment is the same, and should be undertaken along general, and not local or specific lines—and most of the cases clear up completely under such treatment. In making a diagnosis of this type one hardly needs to stress the importance of excluding by most careful investigation any adequate cause for the pyrexia. There are cases reported where certain patients under the influence of a psychosis will, by warming or heating the thermometer in some way, create a factitious irregular type of "pyrexia" which, unless the physician is on his guard, may have some difficulty in accounting for the trouble.

2. *In obscure pyrexia of microbic origin* it is useful to recall that there are certain situations in the body where infection occurs but often remains "cryptic" for a long time. The tissue or organ may be deep-seated or difficult to examine. Certain cases of subacute bacterial endocarditis often present themselves with pyrexia of an obscure type, and which may not present signs which are adequate to carry con-

*Reviewed from address by Sir Thomas Horder in the Feb. issue of the Canadian Medical Journal.

viction for some time. In this, certain points, such as the *café-au-lait* complexion—obscure petechiae about shoulders, neck, or elsewhere—history of sudden occurrence of one or more tender reddish spots on the pulp of the fingers or the toes, preceded by pain, and followed by a little blueness, disappearing in 48-72 hours, may be present. Equally significant are fleeting pains in the hypochondrium due to splenic infarction, and microscopic finding of red cells in urine, from renal infarction. Such points as these are meaningless in themselves, but when in association with this pyrexia, become very significant.

Tuberculous lymph glands and early pulmonary tuberculosis should always be kept in mind. Atypical cases of Hodgkin's Disease are often overlooked as a cause of obscure pyrexia. In this regard there may be no obvious glandular enlargement—and one must not say when this is the case, that Hodgkin's Disease does not exist because one must remember the mediastinal and mesenteric lymph glands, spleen, liver, etc., where the process may be present. The liver may be involved in a mild hepatitis, such as the amoebic type; or even a small abscess in the depth of the liver may occur; and these may be the foci from which the obscure pyrexia may arise. Peri-renal abscess formation has ever to be borne in mind in the presence of an unaccountable pyrexia. It may be the only expression a general staphylococcal infection of the pyaemic type. Another expression of this general infection may be a subacute or chronic form of osteomyelitis, which may be a deep seated or "cryptic" process leading to an obscure pyrexia. The accessory nasal sinuses come also into the group of "cryptic" organs and tissue and may, by the obscure focal sepsis, account for many cases of seemingly unaccountable pyrexia.

3. In diagnsois of certain pyrexias which are somewhat obscure *the exhibition of certain drugs* may be of aid—such as quinine in conditions bearing semblance to malaria; emetine in dysenteric or post-dysenteric pyrexial conditions; sodium salicylate in suspected cases of rheumatic fever; urotropin or potassium citrate in suspected coliform infection of urinary tract, etc. A response to these drugs is often valuable assistance in endeavouring to account for the pyrexia exhibited.

4. *Coliform infections* are believed to be commonly the cause of a sharp rise of temperature when on critical examination no physical signs are evident. These infections are generally of the urinary tract; but they may be general—as in paratyphoid infection. In the latter conditions some patients are observed who are not even ill, but may show a little headache at the beginning passing off more quickly than in typhoid infection. The abdomen seems natural and there is no bronchial catarrh. The relative infrequency of the pulse-rate, the absence of a leucocytosis or even a leucopenia, the relapsing nature of the process makes it likely that the infection is one of the typhoid group. Bacteriological reports are more often of Paratyphosus α than Para. β. Sir Thomas Horder believes that coliform infection of a general type at present is rather common as a cause of obscure pyrexia.

5. *Neoplasms* occasionally cause obscure pyrexia, and the latter is believed to be due to the absorption of toxic material due to the degeneration changes in the neoplasm. Sarcomata, more commonly than carcinomata, among the malignant growths, tend to undergo necrotic changes, whereas necrobiosis is fibroids is not uncommon and may lead to obscure pyrexia.

ANOMALIES OF THE KIDNEY AND THEIR CLINICAL SIGNIFICANCE

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INTRODUCTORY

The kidney is a most important member of the viscera from the clinical point of view, and examination of it is frequently necessary. The diseased conditions brought to light often require surgical measures for their relief and so this organ is of particular interest both to the physician and the surgeon. Anomalies of the kidney then acquire a special significance, and lack of knowledge of them, or failure to recognize them, may have serious consequences by leading the examiner to an erroneous diagnosis or by increasing the difficulties of a surgical operation.

Abnormalities of this organ are very frequent indeed, and if such changes as the possession of more than one renal artery be included under this heading then at least three persons out of every seven will exhibit some anomaly of the kidney. Medical literature is full of articles describing individual cases of deformity or defect, and there are also reviews of collective series of large numbers of cases showing the relative frequency of many defects.

To understand anomalies of the kidney it is necessary to refer to the development of the organ, for in this process we find the explanation of the abnormal conditions so frequently found.

DEVELOPMENT

The kidney as an organ represents the fusion of two individual parts which have separate and independent origins, a secretory portion and a portion composed of collecting tubules for the carrying off of the products from the secretory part.

The secretory portion of the kidney, the metanephros, develops from the hindmost part of the nephrogenic ridge, caudad to the region of the mesonephros, and is therefore situated very far back in the trunk of the body. The collecting tubules are an extensive aggregation of branches of the ureter. The ureter begins as a bud off the Wolffian duct near its posterior end, and grows dorsally and then cephalad until it meets the metanephric tissue which forms a cap over it. It continues to extend cephalad, pushing the metanephros up behind or dorsal to the mesonephros until its permanent position up in the lumbar region is attained.

After this process the primary ureter buds at its upper end into from two to six branches, splitting the metanephric cap into separate smaller caps for each individual branch. This process is repeated until tubercles of the fourteenth to eighteenth generation are formed, each with its cap of metanephric tissue.

The metanephric tissue on the end of each final collecting tubule now

gives rise to a glomerulus, the proximal convoluted tubule, loop of Henle, and the distal convoluted tubule, the end of which finally connects with its collecting tubule. This complicated system all leads eventually to the primary renal pelvis. Here the first four generations of tubules are expanded to form the pelvis and calyces, the fifth generation opening into these at the apex of the pyramids.

The lower end of the ureter becomes shifted off the Wolffian duct to a position on the developing bladder into which it now opens.

Anomalies of the Kidney

I. Changes in Amount of Kidney Tissue

1. *Aplasia*

Failure of kidney tissue to form or differentiate has frequently been noted and may be caused by lack of development of either of the two elements forming the kidney. When it is the metanephric tissue which is lacking a rudimentary ureter may be found which is usually very small, and may be only a fibrous cord attached to the bladder. When the ureter fails to appear the metanephric tissue, even if present, does not differentiate.

There are two different degrees of aplasia exhibited.

(*a*) Bilateral. In these cases there is no kidney tissue to be found and individuals affected thus are either still born or die very soon after birth. It is of interest to note that this condition, although incompatible with life after birth, is not incompatible with intra-uterine life even up to full term.

(*b*) Unilateral. More frequent than the preceding is the complete absence of one kidney. This occurs more often in males than in females, and the left kidney is the one more frequently absent. The resulting condition is commonly designated as "unsymmetrical kidney", and from a long series of post-mortem examinations it is found to occur in the proportion of ne case in 2,500 bodies.

This is a most important condition from the clinical standpoint, as it absolutely prohibits the surgical removal of the remaining kidney for any cause, however urgent. As the possibility always exists that any patient may be the one who possesses only one kidney, in every case of operation on this organ, assurance should be obtained that the kidney of proportion of one case in 2,500 bodies.

It is interesting to note that in only one case in ten where the kidney of one side was absent, was the suprarenal gland also affected. It is usually present and lies at its ordinary level in the lumbar region. Absence of the kidney causes shifting of some of the other abdominal viscera, particularly on the left side, where the spleen moves in toward the vertebral column. An enlargement of the spleen in this location may be mistaken for a tumor of the kidney.

2. *Hypoplasia*

Deficient development, with marked failure to attain normal size, occurs in one case in 5,000 bodies, and may be either bilateral or

unilateral, more frequently the latter. The condition is often designated as "congenital atrophy", which is a very poor name, as it is not due to atrophy, but is caused by lack of development. The affected kidney may be so small as to be practically functionless and thus for clinical purposes the condition will be similar to that of aplasia and must be treated as such, for the individual will possess only one functional kidney.

In bilateral cases there is, right from birth, very poor function, and these individuals have usually lives of short duration.

This condition of hypoplasia resembles closely that condition of nephritis with the small contracted kidney acquired by disease. The distinction between the two can often only be made post-mortem by microscopic examination.

3. *Hyperplasia*

There is a genuine hyperplasia or over-development of the single functional kidney remaining in cases of unilateral aplasia and hypoplasia, where it is compensatory in its purpose and the increase in size is sometimes very great. Diagnosis of some pathological condition in a kidney cannot be made only on the fact of its increase in size. The condition of the organ on the other side, its failure to appear or attain normal dimensions, may give reasonable explanation for this expansion. Without definite signs of disease accompanying the enlargement it would thus be interpreted as a normal compensation for the lack on the opposite side. Compensatory enlargement, sometimes quite extensive, also follows surgical removal of the opposite kidney or its destruction by disease, but this may be only hypertrophy, and not a true hyperplasia.

II. Changes in Number of the Kidneys

1. *Decrease in Number*

This anomaly occurs in aplasia which has already been reviewed. It is seen also in fusion of the two kidneys, which will be discussed later.

2. *Increase in Number.*

This occurrence is very rare, but has been noted. Usually it is a result of doubling of the ureter, totally, so that each part opens separately into the bladder. There may be a splitting of only the upper half of the ureter in some instances. In each case each ureteric tube has had its own separate cap of metanephric blastema, formed by a complete division of the original single mass, and so each part has formed a complete and separate kidney.

III. Changes in Shape of Kidney

Changes in shape sufficient for notice are frequently found, being present in one in every 200 cases. These may occur alone, but are often associated with a change of position, and so add greatly to the difficulty of recognizing the kidney as such, and are very liable to lead to errors in diagnosis.

The kidney may be moulded into odd shapes by other abnormally

placed viscera, and has also been seen in the form of an hourglass produced by a fibrous band across it.

In the foetus, and at birth, the kidney is lobulated, each lobule corresponding to an anatomical unit composed of the system of collecting tubules forming a pyramid with their associated secretory cortex. In some cases this lobulation persists throughout life instead of disappearing early, as is the rule, and when the uneven surface is felt at examination such a kidney may be erroneously considered as containing cysts or tumors.

Among the changes in shape might be considered a large number of cases where the hilus of the organ is displaced and where the renal pelvis lies in an unusual situation. Instead of being on the medial surface it has been found on the upper, the lower, the dorsal, the ventral or the lateral surface. Location on all surfaces but the lateral has been frequently seen, but on the lateral surface it is rare. Torsion of the kidney is also rare, but I have seen such a case, where the hilus began medially, crossed the anterior surface and the lateral border and ended posteriorly, running a spiral course.

It can easily be seen that in operations upon the kidney for removal of a stone from the renal pelvis, and also for other causes, that malformations, especially if accompanied by displacements of the pelvis, may be very disconcerting to the surgeon. If the kidney has to be split open, instead of being sectioned along the so-called bloodless line, misshapen and rotated organs may be split along a line that would result in a maximum of haemorrhage instead of a minimum. If possible the position of the hilus of the organ should be ascertained before cutting into the kidney, in order to avoid unnecessary complications.

IV. Changes in Position of the Kidney

Anomalies in the situation of the kidney are very frequent, amounting to one case of marked displacement and 24 cases of slight displacement in 1,000 bodies. In marked displacements the kidney is usually misshapen, and this fact, coupled with its altered situation, has caused numerous errors in diagnosis when the presence of the kidney mass was discovered and its nature was unknown. When any abdominal tumor in or near the mid line of the abdomen or pelvis is discovered below kidney level the presence of the kidney in its normal location should be determined before a diagnosis is made, because the mass may be displaced kidney, and in the past fatal errors have been made in this regard, by removing what happened to be fused kidneys, or the only kidney the patient possessed, and which had not ascended to its proper level.

1. *Congenital anomalies of position*

These result from failure of the kidneys to reach the normal level in the lumbar region in consequence of the failure of the ureter to grow rapidly enough, or from pressure of other parts growing faster than usual and preventing the ordinary ascent of the organ, or from too early a budding of the upper end of the ureter, which increases resistance to its ascent, and stops it early.

(a) Displacement without Fusion

If the kidney remained near its early embryological position it would be found in the pelvis, in front of the sacrum, and it has frequently been located here. It may also be found anywhere between this low level and the normal position, and has been frequently noted occupying such positions as on the pelvic brim, in the iliac fossa, or in the lower lumbar region. It has occasionally been found higher than usual.

In most cases displacement is not symmetrical, but one kidney is found lower than the other, and sometimes only that of one side is abnormally situated.

A kidney in the right iliac fossa would be felt as a tumor mass, and if accompanied by pain might easily be diagnosed as appendicitis. A similar condition in the pelvis would simulate a colitis, or even a carcinoma of the rectum or sigmoid colon.

(b) Displacement with Fusion

If the metanephric tissue of the two sides comes into contact then there will result a fusion of the two kidneys. This contact may occur as a result of the nephric ridges which posteriorly be close together, actually uniting, or it may result from the ureter of one side growing in an abnormal direction and pushing its kidney over toward the opposite side. Each side of this fused mass drains into its own ureter, with no communication with the opposite side.

The resulting kidney mass is known as the "solitary kidney", but is in reality two kidneys, and so differs from the "unsymmetrical kidney", which is single. The fused mass will possess two ureters, one to each side of the bladder. Either of these may be split or doubled in some instances. The single kidney is differentiated from this by the fact that the ureter, or ureters, if doubled, enter only the one side of the bladder.

There can, of course, be no fusion without displacement of at least one kidney, and in most instances both are affected, as the great majority of cases result in the fused mass lying in the median line, in front of the vertebral column and aorta if in the lumbar region, and in front of the sacrum if in the pelvis.

There are many different degrees of fusion. Only the lower poles of the two kidneys may unite, giving rise to what is called the horse-shoe kidney, which is usually found in the mid line in the lumbar region in front of the aorta. Occasionally it lies behind the aorta. The union may be either by kidney tissue or fibrous tissue.

If the upper pole of one kidney unites with the lower pole of the other we obtain the sigmoid-shaped mass. If the whole inner border of the kidneys is united we get a rounded disc-like mass, and out of the centre of this the ureters arise. They may make their escape either anteriorly or posteriorly, the hilus rotating in this direction to permit of their exit during the fusion.

A fused kidney mass of this kind may form a troublesome problem to solve in diagnosis when discovered. Such a tumor usually produces no symptoms, as the kidneys are perfectly functional, but in pregnant women, if situated in the pelvis, the mass may form a marked impediment

to delivery of the child, and a fatal result to the mother may ensue from rupture of the organ.

Fused kidneys are sometimes found lying entirely to the right or the left side, being formed by aberrant growth of one ureter, carrying its kidney over into contact and fusion with the other.

Morris estimates, from a long series of post-mortem examinations, that some degree of fusion occurs in one case in 1,000, usually resulting in the horseshoe kidney. Complete fusion into a disc-like mass is found once in 12,000 cases, and is usually sacral in position. Surgical removal of the diseased right or left half of such organs has been successfully accomplished, with recovery of the patient.

(c) Congenital Floating Kidney

Among the displacements is reckoned that kidney where there is found at birth a fold of peritoneum like a mesentery, and known as the mesonephron, which suspends the organ to the posterior abdominal wall. This usually produces no symptoms, as the vessels and ureter running in the fold are adapted by their growth to the conditions found. The condition is usually detected accidentally during abdominal examinations for other causes, when the extremely movable kidney is discovered.

(d) Acquired Floating Kidney

This condition is produced by loss of the normal support of the kidney obtained from pressure of the surrounding viscera and depending finally on a firm and tight abdominal wall. Sudden release of tension in the abdomen from rapid loss of fat, or laxness after pregnancy or dropsy, allows the kidney to sag and become more movable, and this condition does cause symptoms, produced by the drag on the vessels leading to poor circulation, and to kinking of the upper end of the ureter with obstruction to the outflow of urine with its attendant evil results.

(e) Acquired Displacements

The kidney may be dragged out of its normal position by heavy cysts and tumors within itself, or forced out by such masses round about it, and also by enlarged liver, spleen, pancreas or suprarenal gland. It has also been forced out of place by tight lacing.

V. Congenital Cystic Kidney

The secretory tubules of the developing kidney may fail to connect with and open into the collecting tubules formed from the ureter. In such cases there is no outlet for the urine produced, which distends the tubules, forming cysts which enlarge until the secretory tissue is destroyed. Walls between neighbouring small cysts break down, and the cavities merge into large cysts. The whole kidney may be a cystic mass at birth.

The formation and union of tubules occurs from the eighth week of intra-uterine life to three months after birth, so causes operating to interfere with this process may occur at any time over a considerably long period. Injurious influences responsible for other kidney anomalies operate between the fifth and eighth weeks of pregnancy.

VI. Anomalies of the Renal Arteries

The presence of more than one renal artery to a kidney is found in three cases in every seven. Its occurrence is easily explained embryologically. Originally the mesonephric arteries, which are numerous, extend back into the permanent kidney, where they all anastomose, and all but one separate from the aorta, the one remaining carrying on the whole peripheral circulation in the kidney. It can be easily seen that more than one artery may persist from the aorta, thus leading to supernumerary renal arteries being found. They may arise finally from the aorta, hepatic, right colic, lumbar, common iliac, external iliac, internal iliac (hypogastric) and middle sacral arteries. Sometimes those to the right kidney lie dorsal to the vena cava.

These arteries frequently do not enter the kidney at the hilus, but may penetrate it at either pole, or on the anterior or posterior surface or even the lateral border. I have seen arteries from five separate sources running to one kidney. Some of these vessels are of large size and may cause considerable trouble in such operations as removal of the kidney. It is never safe for a surgeon to reckon on meeting only one main renal artery, nor to count that all vessels will enter or leave the kidney at the hilus.

The veins are often reduplicated also, but not to such an extent as the arteries.

Anomalies of the Ureter

1. *Aplasia.*

The ureter of one side may fail to form, resulting, of course, in failure to form a kidney on this side. Where the condition is bilateral children are born dead or die soon after birth.

Unilateral aplasia may trouble an examiner with the cystoscope, as no efforts will reveal a ureteric opening into the bladder on the defective side, and thus will lead him to consider the examination a failure, when in fact it is not so.

2. *Hypoplasia.*

The ureter may be very poorly developed, being extremely narrow and delicate. This is usually associated with a poorly developed kidney.

3. *Hyperplasia.*

The ureter may be congenitally over-developed, with a heavy wall and immense lumen, and will simulate the conditions brought about by long continued distension of the ureter from obstruction in the lower urinary passages.

4. *Doubling of the ureter.*

(*a*) Incomplete. The upper portion of the ureter, and sometimes the pelvis alone, is found to have been doubled by a forking of the ureteric bud.

(*b*) Complete. The ureter is completely doubled from kidney to bladder. Both tubes open on the one side of the bladder. Cytoscopic

examination and catheterization of the ureter will not yield proper results here unless the extra opening is seen and its significance realized. A stone may be impacted in one tube of a double or partly doubled ureter and will affect only the part of the kidney which that tube drains, and not the whole kidney.

5. *Abnormally situated Pelvis.*

This has been discussed in connection with the kidney.

6. *Prolapse of the lower end of the ureter.*

This is usually congenital, due to defective development of the bladder wall, or too direct penetration of the ureter, so that it loses the support of the musculature of the bladder and pushes forward into this organ. This prolapse may be of considerable size and will resemble a tumor, such, for example, as a polypus. A polypus should not be excised from the bladder without ascertaining that the ureter opens normally into the bladder, and is not contained in the tumor.

7. *Abnormal situation of the lower end of the ureter.*

The lower end of the ureter has been seen to terminate in the urethra, the vagina, or the rectum owing to shifting in the wrong direction on separating from the Wolffian duct in its early development. If it does not separate from the Wolffian duct then it will finally be found opening into the ejaculatory duct, seminal vesicles, or ductus deferens. All these anomalies have been noted, usually in marked monstrosities, but occasionally in fairly normal individuals.

Owing to the fact that any cause operating to produce anomalies of the urinary organs may also affect others, it is very often the case that anomalies of the kidneys and ureters are associated with abnormalities of other parts. The genital system, owing to its close association with the urinary organs, is very frequently affected, and it is a good rule to follow, that wherever any anomaly of the genital system is found, associated anomalies of the kidney and ureter should be suspected.

In cases where cystoscopic examination reveals the opening of one ureter, but careful search fails to discover the second, the possibility of absence, very small size or abnormal location of the opening should be borne in mind, and confirmation of this sought.

The diagnosis of a misplaced kidney and the determining of the fact that it is a normal organ and not a tumor is sometimes very difficult. It must be ascertained that the kidney is absent from its ordinary location. It will also be noticed, if the mass is kidney, that there is no progressive increase in size, as there would be in a tumor. On manipulation, if it is kidney, a peculiar sensation will be felt, known as kidney sensation, somewhat akin to that called testicular sensation, accompanied by a feeling of nausea and weakness. To complete the diagnosis, if possible the ureters should be catheterised and an X-ray taken to show their location and that of the renal pelvis.

Many other papers have been freely drawn upon in compiling this article, but references are omitted for lack of space.

ON THE TREATMENT OF SIMPLE GOITRE

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A precise knowledge of the pathological condition to be treated is the first essential in rational therapy. No apology is then indicated for an endeavour to explain the conception we have of what is meant by Simple Goitre.

One must begin by understanding thyroid function, for, as is shown by many observations, simple goitre is a phenomenon resulting from thyroid stress.[1] The function of the thyroid gland is to secrete a "substance which is of importance in maintaining metabolism at a rate suitable to the needs of the body, and, in the young, is necessary for the normal growth of the individual".[2] From the time of its development, commencing in the fourth week of intra-uterine life, the work of the gland begins. Throughout prenatal and postnatal life there are periods of increased demand upon the thyroid gland. Prenatally these demands are fairly high. Then follows a period of moderate routine activity which terminates with the enormous demands of puberty. From then onwards the demand lessens except for the stress periods in the female which are associated with menstruation, and more particularly with pregnancy.

Given an adequate supply of iodine the normal thyroid appears capable of meeting all body demands for its product. Marine states that simple goitre may be prevented by the administration of 3 to 5 mg. of iodine twice weekly, over a period of a month, and repeated twice yearly.[3] Thyroid dysfunction begins with a lack of available iodine, and appears during a period of stress.[4]

The onset of thyroid dysfunction is proclaimed by swelling of the gland due to increase of blood supply, hypertrophy of the secreting cells and to the opening up of previously inactive acini. This forms the goitre of adolescence, which appears at the age of puberty, is due to lack of iodine in the presence of thyroid stress and is remediable by the giving of iodine.

The next stage in thyroid breakdown consists in distension of the acini with the so-called colloid. Here some permanent harm is wrought to the secreting cells which line the acini. From this stage recovery is slow and can never be absolutely complete, hence the importance of early treatment. This stage is not certainly curable by the administration of iodine. The colloid goitre calls for rest, which is secured by giving thyroxin or thyroid extract.[1] It is worth mentioning that there is no record of any case in which thyroid extract has done harm to the thyroid gland. Some degree of hyperthyroidism results when adequate doses of thyroid extract are given. This, however, need cause no alarm, as the hyperthyroidism due to thyroid extract always subsides when the thyroid extract is withdrawn.

Going hand in hand with these two stages one finds adenoma

formation, though the adenomas are not usually distinguishable as definite nodules until a goitre has existed for a few years, say, after the age of twenty. There is some good clinical and histological evidence to suggest that adenomas are really localized areas of hyperplasia which have persisted.[5] Adenomas are not only not remediable by iodine, but may even be dangerously activated by prolonged or free administration of iodine. Adenomas are not curable by thyroid extract, though they may decrease in size if their acini contain much colloid.[6] We do not yet know of any medical treatment for adenomas and believe that, where treatment is indicated, they should be excised.

Before giving a classification of simple goitres, it is worth noting that all three stages, adolescent goitre, colloid degeneration and adenoma formation may be present in the same gland. The goitre is classed in the stage which is most prominent.

The classification we use for simple goitre is as follows:

1. Adolescent Goitre.
2. Colloid Goitre.
3. Non-Toxic Adenoma.

The diagnosis of simple goitre rests on swelling of the thyroid gland in the absence of signs of increased metabolism. Adolescent goitre, with its vascular engorgement, cellular hypertrophy and hyperplasia, is most commonly found in girls at the age of puberty. The history is one of comparatively recent swelling. Thrill or bruit over the superior thyroid area is usually found. Some degree of nervousness or tachycardia is often present. Some of these goitres are said to show localized areas of hyperplasia which resemble adenomas,' but can be distinguished by their recent development and by their disappearance under treatment with thyroid extract. It is an interesting point in theory as to whether these areas of hyperplasia may not actually be the precursors of the true adenomatous nodules.

The colloid goitre may be of large size. The history of swelling will date back for a year or more, usually to the age of puberty or to a pregnancy. The swelling is moderately soft, rather softer than the adolescent goitre. Thrill or bruit over the superior thyroid area may be present. Nodules of adenomatous tissue may be expected, if the goitre has been present for more than three years. If age be taken as the criterion one should look for nodules after twenty, and expect them after twenty-five. I have, however, seen a case with multiple adenomas at the age of seventeen.

Hypothyroidism may be evidenced in any case of simple goitre. It is not uncommon to find sensitiveness to cold as shown by a feeling of chilliness when others are comfortably warm, or the requirement of more bed clothes than the normal individual. Dryness of the skin may be found. Poor appetite, lack of energy and other signs of debility may be present, but cannot be accepted as definite proof of hypothyroidism. A tendency to put on weight is suggestive, but may be due to faults in diet or general hygiene. The basal metabolic rate may be below normal. In any event, it is reasonable to look for signs of hypothyroidism in

these cases, for thyroid stress implies a potential, if not an actual, hypothyroidism.

Simple goitre is an absolutely preventible disease. All that is required is an adequate supply of iodine to enable the thyroid to meet the periods of stress. Marine considers that the giving twice yearly, spring and fall, of one ounce of the Syrup of Hydriodic Acid, in daily doses of 15 to 30 minims, is quite sufficient. This should be given to children from the ages of ten to seventeen years. For the protection of the fetus, the mother should receive the same treatment in the first half of pregnancy. The Syrup of Hydriodic Acid is selected as being a palatable preparation of iodine. If Lugol's solution is used, only one-fifth of the amount would be required.

The treatment of adolescent goitre is precisely the same as for the prophylaxis of simple goitre; that is to say, the administration of one ounce of the syrup of Hydriodic Acid twice yearly.

The essential treatment of colloid goitre is to give sufficient thyroid extract to keep the basal metabolic rate slightly above the normal. Plummer precedes this by a single intravenous dose of 5 to 10 mg. of thyroxin, which reduces the goitre to one-third of its size in thirty-six hours. This substance is not as yet widely available[1]. Marine, in his treatment, gives 30 to 60 grains of thyroid extract, in daily doses of 3 grains, and then, after a rest period of two weeks without treatment, saturates the thyroid with iodine by giving Syrup of Hydriodic Acid as for prophylaxis. This cycle of treatment may be repeated every third or sixth month. He expects to obtain the maximum reduction of the goitre in from six to twelve months.[4]

A warning must again be given as to the danger in administering iodine to individuals in the twenties or later. Adenomatous nodules may be so covered by the mass of a colloid goitre as to be impalpable. The dosage of iodine used by Marine is too small to activate an adenoma, but is ample to supply the iodine required by the thyroid. It appears doubtful, indeed, as to whether any advantage is gained by larger doses of iodine in the treatment of simple goitre.

Recent years have been marked by great forward strides in our knowledge of thyroid function and dysfunction. The eradication of endemic goitre is becoming a real possibility. The treatment of the established case of goitre is in a less happy position, but much may be done by care in diagnosis, frankness in prognosis, and the application of what is known to be true.

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THE HISTORY OF LICENSING OF MEDICAL PRACTITIONERS IN ONTARIO

By Burton Yuill, '29

In the present day the medical profession of Ontario has a high degree of legal protection, which in its integrity stands in marked contrast to the lack of adequate laws and lax enforcement of existing so-called regulations of a few score years ago.

Charlatanism and associated evils have been largely eradicated in Ontario by a series of steps, the first of which, along with the preceding conditions—it is the purpose of this article to describe.

Before the American Revolution, Ontario (then governed from Quebec) was a dense wilderness penetrated only by a few fur traders and wandering bands of Indians.

Beginning in the year 1784, thousands of United Empire Loyalists swarmed into the country, settling mostly about the garrisons at Kingston, Niagara and Detroit. By 1790 the population had risen to about 20,000, and the settlements had spread all along the north shore.

Most of these refugees were destitute, having been driven from their homes, and all their property confiscated. It is to be noted, that, although other professions were represented by considerable numbers, few if any, non-combatant doctors were among these early settlers. It seems that the rebels drove out the loyal clergy and lawyers, but recognized the necessity of retaining their chosen medical attendants. Even though a greater percentage of these were fearlessly loyal in expressing their sentiments, their persons and property were generally respected. A few, however, becoming army surgeons, had settled in New Brunswick and Nova Scotia.

The result was a serious shortage of medical aid for outlying districts of the new country. Settlers close to the garrisons received the reluctant services of the army surgeons, who were rarely willing to go any distance from home. A few, however, martyred themselves by giving up their commissions with the accompanying comfortable board, to engage in civil practice with its round of hardship and plain fare.

As might be expected, the scarcity of skilled physicians gave a very fertile culture for the growth of those parasites of human ignorance and suffering—the quacks and their confrères. Many of these came from the South, carrying gaudily inscribed diplomas from fake medical schools. Aided by such credentials, the tricksters had little difficulty unloading their supplies of charms and "cure-all" concoctions among the ignorant, superstitious and credulous people.

Recognizing the menace, the Government at Quebec passed an Act in 1788 intended to restrain quackery. No person was to sell or distribute medicines nor practise as a physician, surgeon or midwife without first obtaining a licence from the Governor at Quebec. The penalty for infringement of this Act was £20 for the first offence, £50 for the second, and £100 plus three months' imprisonment for every subsequent offence. No examination was required by anyone selling

patented drugs, or by those physicians who had obtained a degree from any university or received a commission in the army.

At this time, the new districts being settled were under Military government. Garrison officers superintended the granting of lands, gave out food and implements, and enforced English laws. It is interesting to find that in fulfilling the latter duties it sometimes fell to the lot of the army surgeons to perform the marital ceremony for romantic settlers.

The general confusion at this time resulted in lax enforcement of the laws and the Act of 1788 did not produce the expected reformation.

In 1791 the Province of Quebec was divided into Upper and Lower Canada. The parliament of the new Province of Upper Canada, meeting then at Niagara-on-the-Lake, passed an Act in 1795 further regulating medical practice. A board of at least two leading physicians was to be appointed by the Governor to examine applicants before a licence to practise was issued. This Act was also a failure, as very few applied for leave to practise; the result being that even the most ignorant were admitted without difficulty—if they would only present themselves for admission.

Concerning the Act of 1795, Robert Gourley—an advocate of free medical practice—wrote: "Now the fact is that few men who could stand the examination of such as were well-bred and well-educated, and fewer still had received a degree of a university, would practise. Nobody above the rank of a common cowherd would travel round a circle of forty or fifty miles in the wilderness for the pittance which could be collected long after this law was made; and save in the larger villages—Kingston, Niagara and York—nothing like a genteel subsistence could be obtained. How absurd, then, to think of preventing the remotely scattered people from choosing whom they liked to draw their teeth, bleed, and blister them! How absurd, how cruel, how meddling, that a poor woman in labour could not have the assistance from a handy, sagacious neighbour, without this neighbour being liable to be informed upon and fined! This absurdity was not sufficiently perceived for ten years, and then the Act was repealed in 1806."

From 1806 to 1818 anyone wishing to assume the title "Doctor" was at liberty to practise without fear of being arrested. Although they were paid almost entirely by products of the farm, it gave them a good living, as nobody had much money. At this time, practically nothing being known about the control of contagious diseases, work was plentiful for medical men and quackery was rampant. So bold were the medical pirates that they even advertised their prowess in public places, the following appearing at Richmond:

"Richmond, Oct. 17th, 1817.

"Advertisement—This is to Certify that I, Solomon Albert, is Good to cure any sore in word Complaint or any Pains, Rheumaticks Pains, or any Complaint what so ever the Subscriber doctors with yerbs or Roots. Any Person wishing to employ him will find him a Dick Bells.

"Solomon Albert."

Often poor people reverted to magic rather than trust the prescrip-

tions of charlatans. A good example of this was the following cure for the ague: The patient went into the forest and searched out an unbroken branch of a sapling elm, to which he fastened a newly woven thread wth as many knots tied in it as he expected attacks of the fever to occur. At first the originators of the cure were often disappointed, as they tied too few knots. In time improvement came, for they tied so many knots that the disease could run its course before the number gave out.

That people were awake to the outrageous state of the medical profession was clearly shown by innumerable letters and editorials appearing in the newspapers at that time. Bishop Strachan, writing in the Upper Canada Gazette, in 1812, summed up the qualities of quacks very concisely. For this reason the following extracts have been chosen from his letter: "They (the quacks) comprehend not the causes or nature of diseases, are totally ignorant of anatomy, chemistry and botany; many know nothing of classical learning or general science. Where shall you find one among them attending particularly to the age, constitution and circumstances of the patient, and varying his prescriptions accordingly. It is, indeed, preposterous to expect judgment and skill, a nice discrimination of diseases or a proper method of cure from men who have never been regularly taught, who cannot pronounce, much less explain, the terms of the art they profess, and who are unable to read the books written upon the subject. The welfare of the people calls aloud for some legislative provision that shall remedy this increasing evil; any examination, however slight, would terrify nine-tenths of the present race. Were it only enacted that no other trial than that of reading two pages of Blackstone's Commentaries or Burns' Justice, without missing lines, spelling long words, or forgetting the stops, in the presence of the justices of the Quarter Sessions (after showing their credentials that they had served a regular apprenticeship). It would be a singular benefit and stop the greater number. They cure all diseases with two specifics, opium and mercury. Is a patient in great pain he must swallow a large pill of opium. Is a practitioner in doubt about his disease, a dose of calomel is the remedy."

It is quite evident that some effective measures had to be taken by the Government to end this sort of thing. That step came in 1818, when an Act was passed dealing with illegal practice of Medicine. A board of five legally authorized physicians were to meet regularly at York (now Toronto) to examine persons desiring licences to practise medicine. Anyone practising without a licence was liable to a fine of £100—the informer to receive one half. Women were free to practise midwifery without having to obtain a licence.

This Act became law, and proved to be highly successful in stamping out quackery. The education of the people by newspaper articles, the handsome reward to informers, the freedom of women to practise midwifery, and a responsible Medical Board—backed by an outraged body of reliable physicians—helped to make the Act of 1818 the first great step in opening "a proper portal to the ranks of the Medical profession of Ontario".

REPORT OF A CASE OF DOUBLE ACUTE MASTOIDITIS WITH THROMBOSIS OF THE LATERAL SINUS ON ONE SIDE WHICH WAS FOLLOWED BY A LUNG ABSCESS.

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H.C.—Aged eighteen years, admitted to Ear, Nose, and Throat Dept. of Toronto General Hospital, 12th December, 1924.

The patient, a young, well developed white male, was admitted to the ward with a temperature of 103.2°, complaining of pain over the left side of the head and face of a duration of one month. This pain had begun following a head cold, and had at first been localised to the left ear, but had gradually spread over the whole side of the head. The pain was described as sharp and shooting for a minute or two, and then giving way to a steady, dull ache. It had been sufficient to prevent sleep for several nights previous to admission, and it was greatly increased on any attempt at mastication. This pain seemed to be localised chiefly in the left ear, over the left mastoid and left side of the forehead, and to a less extent over the cheek and down the left side of the neck.

On looking into the past history of the patient it was found that both ears had been discharging more or less constantly ever since an attack of measles ten years ago. There had been very little pain at any time, but fairly profuse discharge, more especially from the right ear. Deafness, which was quite marked, had been gradually increasing over the period of the trouble.

Family and personal history were negative.

Physical examination of cardio-vascular, digestive, and respiratory systems showed nothing abnormal.

Examination of the nervous system showed the patient to be mentally hyperactive, tending to delirium. The reflexes were somewhat exaggerated.

Special examination—The nose and pharynx were acutely congested. The left cervical glands were slightly enlarged.

The ears—Both external auditory canals were filled with a sero-purulent discharge, on removal of which a large central perforation was found in the right tympanic membrane, and a slightly smaller, more posterior perforation in the left tympanic membrane. There was a moderate degree of tenderness over the left mastoid process, but no oedema or swelling; while on the right side there was neither tenderness nor swelling in the mastoid area.

The hearing was greatly diminished in both ears with Rinné's test negative, and Weber indefinite.

There was no vomiting, vertigo, nystagmus, or other signs of any labyrinthine irritation.

The eyes—Fundi were normal and the fields full.

Diagnosis—A diagnosis of left acute mastoiditis was made and a radical operation performed the following morning by Prof. Perry Goldsmith. (13th December, 1924.)

Second day—Details of operation—Following the usual routine preparation, the patient was anaesthetised with ether, and a hair-line incision made over the left mastoid. The cortex, which was soft in areas, was removed with a gouge and the antrum exposed, revealing a large cholesteatoma which had eroded the roof of the antrum (tegmen tympani), giving rise to an extra-dural abcess. Through this opening the dura bulged into the antrum and was surrounded by pus. The bridge and ossicles were removed and all diseased tissue curretted away in both the middle ear and the antrum. The lateral sinus was exposed for about half an inch, and while not quite of normal colour, it showed no signs of thrombosis and had no granulations on its surface. The cavity was packed with iodoform gauze and the wound left open. The patient was returned to the ward in fair condition, with a pulse of 160.

In the evening of the same day the patient was resting as comfortably as could be expected. The pulse having fallen a few hours after the operation to 100, and the temperature to 100°.

Third day—14th December—Temperature went up slightly, but otherwise the patient showed very little change. There was no pain, no headache, and no vomiting. The chest was apparently clear.

Fifth day—16th December—The patient had a severe chill during the night, with temperature of 104° per rectum. Examination of the chest was negative. There was no headache rigidity or other signs of any intracranial complication. The white blood count was 12,800, with 88% polymorphonuclears. The urine examination was negative.

It was felt that the infection was probably taking place in the left lateral sinus, but as good drainage had been supplied, interference was withheld pending a second rigor or some further indication. A blood culture was taken, from which a growth of staphylococcus aureus was secured.

Sixth day—17th December—The patient had a second rigor during the night with a temperature of 104°, which fell by morning to 99.6°. He felt very well and was lying reading in bed. A further examination of the chest was negative, and Dr. Goldsmith made a diagnosis of infective thrombosis of the left lateral sinus, and arranged for immediate operation. Just here one would like to point out the feeling of well-being which the patient enjoyed, and which is often present in these cases.

Details of operation—The mastoid antrum was exposed, using the previous incision with a horizontal extention posteriorly over the knee of the sinus. The lateral sinus was further exposed both above and below, but there were no granulations on its walls, and the lumen did not appear to be occupied, by a thrombosis. The dura above the antrum had a very unhealthy appearance, being lustreless and aedematous. It was therefore more widely exposed before packing and partially closing the wound.

Seventh day—18th December—During the night the temperature

was 101°, and the patient seemed restless and looked ill. There was no further rigor, however, and still no signs of anything intracranial. The eye grounds were normal and the fields full. The white blood count remained about the same, about 14,400.

At this point the condition of the patient caused some anxiety, since the root of the trouble had apparently not been reached. The symptoms pointed to a septicaemia, and only partial relief had followed the opening and drainage of the left mastoid region. It was thought advisable, therefore, to investigate the right mastoid area (it being remembered that the patient has a chronic suppurative condition in both ears), and the operation was proceeded with at once.

Details of the operation—The usual post auricular incision was made. The cortex was soft in consistency and the antrum and middle ear were filled with necrotic bone. This condition of the bone extended above to the dura and posteriorly to the sinus, and both these structures were consequently exposed for examination, but they appeared quite healthy. The radical operation was performed and the wound closed on iodoform packing.

It now appeared to the operator that since the patient showed very marked indications of infection of one of the sinuses, and since the right sinus appeared to be perfectly healthy, that the left lateral sinus must be at fault, and that therefore the wisest procedure was to open it while the patient was already under the anaesthetic. The patient was therefore turned on the other side and the left mastoid wound again opened. The sinus was slightly more exposed and opened over about one and a half inches just at the knee. It bled freely from both ends, and no visible clot was found, nor was there any evidence of any mural thrombosis. Both ends of the sinus were plugged with iodoform gauze, as was also the mastoid cavity, and the wound was closed.

The patient was returned to bed in fair condition, but with very rapid pulse.

Eighth day—19th December—The patient appeared to be rather drowsy, but complained of severe pain in the right side of the chest, which made him catch his breath. He had no cough, temperature of 101° to 104°, respiration 20 to 22, and a pulse of 84 to 92, which seemed slow in relation to the temperature. Prof. Graham's service reported an area of dullness at the right base, which extended back to the post axillary line, while the breath sounds were very distal over the right base anteriorly. The condition was apparently pleurisy.

Ninth day—20th December—Respirations and pulse were increased. Cough was present. Severe pain on the right side of the chest and the right upper quadrant of the abdomen. The signs of a pleuritic effusion were well marked. There was no evidence of any intracranial extensions, and no pain was complained of in the head.

Tenth day—21st December—Dullness over the right lower and middle lobes were marked. Friction rub gone. White blood count 34,800 with polymorphonuclears 94%.

During the next ten days the chest condition remained all important. The mastoid wounds were in good condition, and appeared to be healing nicely.

Twenty-first day—1st January—The patient coughed up a large quantity of greenish-yellow foul smelling sputum. He also vomited twice, no doubt due to swallowing some of the sputum. A diagnosis of Pulmonary Abscess was made, and steroscopic X-Ray plates were taken of the chest, which confirmed this diagnosis.

Twenty-fifth day—5th January—General condition was slightly improved. The white blood count remained at about 30,000.

Twenty-eighth day—8th January—Pneumothorax was performed through the third right interspace just external to the mid clavicular line. 400 cc of air was introduced.

Thirty-third day—13th January—Refill of pneumothorax. The initial pressure in the chest was 0 to —40 mm of water. 550 cc of air was introduced, and the final pressure was 0 to 20.

The pneumothorax was filled twice more on January 21st and January 30th respectively. The patient showed a gradual but steady improvement from the time of the first pneumothorax until his discharge on March 16th, after ninety-five days in hospital.

The mastoid wounds both healed well, and the cavities granulated in a most gratifying manner. At the time of discharge, the right was dry, while the left showed a very slight discharge. The hearing was better than might have been expected, the loud speaking voice being heard at about three feet.

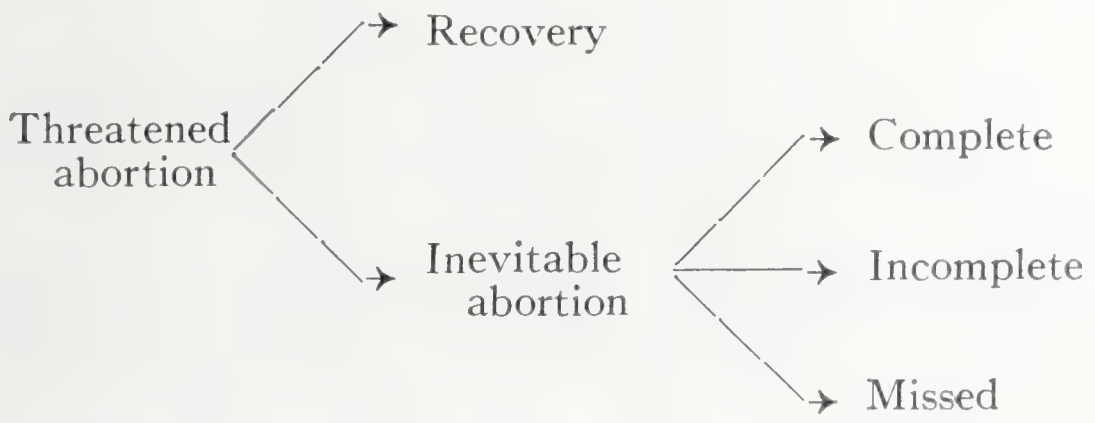
The case appeared to us to be interesting from the fact that both mastoids being diseased it was very difficult to decide which lateral sinus was at fault, and also because the subsequent pulmonary abscess would seem to confirm the diagnosis of this condition, although no thrombosis was found at operation, at least none large enough to be demonstrated.

THE CLINICAL TYPES OF ABORTION AND THEIR TREATMENT

A. C. Taylor, M.A., '26

Abortion is defined by most modern writers as a termination of pregnancy before the child is viable, that is, before the 26th or 28th week. In the older texts it is limited to a termination of pregnancy before the 16th week, while "miscarriage" is applied to those occurring between the 16th and 28th weeks (Williams[16]).

On clinical types most texts are in agreement (De Lee[2], Williams[16], Munro Kerr[10]). A reasonable clinical classification would appear to be one which recognizes the progressive nature of the condition, such as:



This is the classification given by Munro Kerr.

The abortion may become infected at any stage, or may be infected from the beginning, so that a further broad clinical division into *aseptic* and *septic* abortions is necessary.

I. ASEPTIC ABORTION

The classical signs and symptoms of an abortion are given by De Lee[2] as: uterine pain, uterine haemorrhage, softening and dilatation of the cervix, and presentation or expulsion of all or parts of the ovum.

1. Threatened Abortion. The main sign, and often the only one, is slight or moderate haemorrhage from the uterus. Pain may be absent or slight, or there may be a sense of weight in the pelvis. The cervix is firm, and usually not dilated. The uterus is large, usually hard, and anteflexed. The symptoms are similar to those of an irregular menstrual period, and are frequently interpreted as such by patients. The differential diagnosis is made more difficult by the fact that abortions frequently occur shortly after the time when a menstrual period is expected by the patient. Thus Hillis[9] from an analysis of 1000 cases, states that abortions are commonest from the first to the third months of pregnancy. Others put the greatest incidence from the second to the fourth months. A definite history and positive signs of pregnancy are important.

The *treatment* aims to prevent the abortion. Vaginal examination should be avoided if possible. The patient must be put to bed and kept absolutely quiet. Uterine contractions may be diminished by giving morphine. De Lee[2] advises laudanum, mins. xx every 4 hours. Gordon[6] gives morphine g. $\frac{1}{6}$ every 3 hours for two or three doses. In less acute cases, where uterine contractions are absent and the bleeding is slight, bromides may be used. An ice-bag to the lower abdomen is advised by Hillis[9]. The bowels must be kept free from hard faecal matter. To do this Gordon[6] gives a daily low enema. De Lee[2], after 3 days, gives an olive oil enema followed by castor oil purgation. If the bleeding has stopped, the patient is allowed up at the end of 5 days.

2. Inevitable Abortion. When a threatened abortion becomes inevitable, all the classical signs appear. The haemorrhage is more profuse, or, without being more profuse at any one time, persists over a week or ten days. The pains are stronger and intermittent. The cervix softens and begins to shorten, while the cervical canal opens. Some of the products of conception may protrude, or be felt by the examining finger. There is a disappearance of the anteflexion of the uterus, which becomes cone-shaped. The vagina is tense (Drosin[3]).

A woman who is threatening to abort, with all the signs present and so pronounced that the abortion is judged inevitable, should still be treated with the aim of prolonging the pregnancy. The reason for this is that in some such cases abortion has been prevented (De Lee[2]). If however this treatment fails to stop the progress of the abortion, or if when first seen the abortion is obviously inevitable and imminent, then one of two lines of treatment may be pursued:

(*a*) *Conservative or Expectant* treatment should be followed in the

absence of excessive bleeding, or if the products of conception are not protruding from the os. The patient is prepared as for a normal labour. Pituitrin in doses of $\frac{1}{2}$cc. every 2 or 3 hours for 4 doses is recommended by Gordon.[5] His patients are also instructed to lie on the abdomen for 8 hours out of the 24.

(*b*) *Active interference.* The indications are excessive haemorrhage, or protrusion of the ovum or membranes. In the latter case the protruding parts are carefully removed with a sponge stick. In the event of excessive or prolonged bleeding, there are two forms of active treatment followed:

(i) Vaginal packing. This consists in thoroughly packing the fornices with iodoform gauze, so that a firm ring of packing surrounds and compresses the cervix. This serves to control bleeding, and also stimulates uterine contraction. The rest of the vagina is then packed with gauze. This is left in 18 to 24 hours, and when it is removed, the contents of the uterus usually come away. Gordon[6] found that 62% of inevitable abortions required packing for haemorrhage, 52% once, while 10% required repacking.

(ii) The other form of active treatment is dilatation of the cervix and extraction of the ovum, with curettage. Some authors recommend this as a routine. Hedley[7] advises dilatation and extraction of the ovum with the finger. Laemmle[11] evacuates the uterus on admission, using a blunt curette. In 315 afebrile cases so treated he had no mortality. In only 2.5% was there any post-operative rise in temperature, and in only 1.6% did the fever last for 24 hours or more. He claims that he has shortened the period of illness and lessened the bleeding. The majority of gynaecologists, however, resort to curetting only when packing has failed[5].

For therapeutic abortion in debilitated patients, especially those suffering from cardiac and renal disease, an abdominal abortion with sterilization performed under local anesthesia, is advised by Newell[12].

The most reasonable treatment would appear to be one of watchful waiting, as the inevitable abortion must soon pass into either one or other of the types "complete" and "incomplete". Excessive haemorrhage is the only indication for interference, and this emergency is best met by vaginal packing.

3. Complete Abortion. When the ovum and membranes have come away, the patient is given rest and nourishing food for three days, or more (Yates and Connelly[18]). Curettage should not be done unless there is definite indication of retention of part of the foetus or membranes.

4. Incomplete Abortion. When part of the ovum, membranes, or placenta is retained, there is usually a continuation of the haemorrhage and of the pain. The retained part may gradually break down and be expellled in the lochia, may remain intact and be expelled at a later date, may become infected, or may form a placental polypus[2]. The diagnosis is based on the continuation of the haemorrhage, sometimes with pain; and the finding on examination, of a large, soft subinvoluted uterus with patent cervical canal.

The great majority of inevitable abortions pass over into this group

of incomplete abortions. 1,528 out of 1,640 of Gordon's[6] cases were incomplete. Hillis[8] found from an analysis of 963 cases, that 77.2% were incomplete, 14.8% complete, and 7.9% threatened.

On the treatment of incomplete abortions authors again differ. Gordon[6] champions *conservative treatment.* He interferes only when there is profuse haemorrhage, or haemorrhage lasting more than 10 days. In such cases he first uses vaginal packing, which in only 10% of cases has to be repeated. If a second or third packing fails to control the haemorrhage and bring away the retained tissue, curettage is done. In only 3% of his cases was this necessary. Hillis[9] gives 6.2 as the percentage of cases requiring curettage for haemorrhage.

Curettage for the great majority of cases of incomplete abortion is advised by most writers on the subject. (De Lee[2], Munro Kerr[10], Hedley[7], Drosin[3], Hillis[9], Laemmle[11]). Laemmle, as noted above, evacuates the uterus on admission. In a large number of cases so treated he had no fatality. Hillis[9] advises 5 days rest and observation, then curettage. In 229 cases curetted there was no mortality, and there was no striking difference in the length of illness, or in the temperature. The lochia remained red for an average of 1.5 days in curetted patients, while in those conservatively treated it remained red an average of 3.9 days. The advantages claimed for curettage are that it ensures an empty uterus, prevents bleeding, and often shortens the stay in hospital (Hillis[8]). Yates and Connelly[18] reporting 81 cases from the Detroit Receiving Hospital conclude that the sooner the uterus is emptied the better. If the cervix is open, they remove the retained contents with the finger. If not, packing is employed for 24 hours.

The danger in active intra-uterine interference is sepsis. This is balanced however, by the danger of infection in the decomposing mass of tissue which is left within the uterus, and by the inconvenience and danger from prolonged haemorrhage. Since none of the specific contra-indications associated with a septic condition of the uterus are present, curettage with a sharp curette, done under strictly aseptic conditions, would seem to be the proper treatment. Where absolute asepsis and adequate surgical experience are lacking, the conservative treatment, with packing if haemorrhage is severe or prolonged, is undoubtedly safer.

5. Missed Abortion is rather rare. The diagnosis is often difficult. A uterus which does not increase in size week by week, with cessation of the signs and symptoms of pregnancy means that the foetus is dead. There may or may not be a history of a threatened abortion.

The treatment may again be *conservative* or *radical.* The uterus will eventually expel the dead foetus, and there is no danger in allowing it to remain. Most women would, however, object to carrying around a dead foetus, and as evacuation under aseptic conditions has very little danger, it is usually done. A number of cases are not recognized until the dead foetus is later extruded.

II. SEPTIC ABORTION

An abortion may become infected at any stage. Hillis[9] found 29.7% of his series of 1,000 cases were septic. One-sixth of Gordon's[5] cases had

a temperature of 101°F. or over. The infection is almost invariably introduced from without and probably the greatest factor is criminal abortion. 32.35% of Hillis's cases were criminal, and therefore potentially septic. Of 1,000 cases reported in a later paper[9] 22% were due to criminal abortions. This group makes up the great bulk of the cases in the 29.7% of septic abortions in this series.

The symptoms of a septic abortion are simply those of an ordinary abortion plus those of an acute infection—increased pulse and temperature, chills, prostration. According to Cannon[1] the pulse rate is a surer guide to the condition of the patient than the temperature. Acute pain is only experienced if there is peritoneal involvement or acute congestion. The white blood count is usually raised.

TREATMENT. In the past it has been the practice to *empty the uterus* at once, either by curette or gloved finger, on the principle that by doing so, the great mass of infected and irritating material is thus removed. Many authors still advise this treatment. Munro Kerr[10] teaches curetting with a large blunt curette, and washing out the uterus. Hedley[7] condemns the curette but advises cleaning out the uterus with the gloved finger. Drosin[3] uses the sharp curette in infected as well as aseptic cases. Laemmle[11] advises immediate curettage with the blunt curette. In 217 patients so treated, 30% of whom had been febrile for some time, he found an immediate fall in temperature in 68.7%, in 11% within 24 hours. His mortality was 3.2%.

The evidence for *conservative treatment* of septic abortions has been accumulating. In 1899, a committee of the American Gynaecological Society[14] while reporting on the value of serum therapy for streptococcal infection of the uterus, noted the low mortality rate in cases treated conservatively by Williams (4.35%), Krönig (4%), and Savor (2.6%), while others with radical treatment had mortality rates as high as 30%.

Hillis[8] in 1920 reported an analysis of 200 consecutive cases at the Cook County Hospital. In 100 the uterus was emptied as soon as convenient, while in the other 100 no local treatment was given. The following table modified from Hillis shows the striking superiority of the conservative treatment:

	Curetted		*No local treatment*	
No. of cases	100		100	
Average days of fever	8.1		3.5	
Average days in hospital	13.28		8.48	
Complications	19:	Sepsis = 9 Parametritis = 4 Phlebitis = 2 Cellulitis = 1 Endometritis = 1 Peritonitis = 1 Salpingitis = 1 Haemorrhage = 1	4:	Abscess = 1 Sepsis = 1 Salpingitis = 1 Cellulitis of leg = 1
Mortality	3%		1%	

Gordon[5] in the following year published excellent results from conservative treatment. This consisted in putting the patient in Fowler's

position, keeping her in the open air and pushing food. Transfusions were given when necessary, and sera and vaccines were tried. No local treatment of any kind was given, except for haemorrhage, which he notes is rare in septic cases. His conclusions are that all cases should have conservative treatment until it has demonstrably failed, which will happen in about 4% of cases; and that the mortality and morbidity are in direct ratio to the degree of intra-uterine interference. In 1924, Gordon[6] had a mortality in 193 septic cases of only 0.63%.

Probably the most extensive analysis is that of Winter[17] who reviewed 24,000 cases of septic abortion. He found a total mortality rate of 2.7 in uncomplicated cases (that is, those in which peritonitis, septicaemia, or other extra-uterine spread of infection had not occurred). He gives the following figures:

Cases curetted—blunt curette	2.9%	mortality
Spontaneous evacuation following quinine	1%	"
Expectant treatment, *i.e.*, temperature allowed to fall and no interference during febrile period	1.1%	"

Simon[15] advocates curettage after the temperature has fallen, and quotes statistics from Deitrich as follows:

Active treatment	4.5%	mortality
Expectant (temperature down and then curette if necessary)	1.4%	"
Conservative (non-interference)	5.4%	"

Other papers reporting good results from conservative treatment are contributed by Offermann[13] (64 cases) and Dubrowitsch[4]. The latter reported 1,336 cases, treated as follows:

265 actively treated when temperature was raised	*Highest mortality*
89 conservatively treated	*Highest morbidity*
891 expectant treatment. Uterus cleared several days after the fall of temperature	*Lowest mortality and morbidity*

From the clinical side the evidence of the larger clinics is in support of conservative or expectant treatment. The uterus should not be entered when sepsis is present. According to the majority of the best authorities, 4 or 5 days after the temperature has fallen the uterus may safely be evacuated and the abortion treated as an aseptic incomplete abortion (Hillis[9], Winter[17], Simon[15], Dubrowitsch[4]). From a study of the pathology of sepsis in the uterus, one is driven to the conclusion that active treatment is not only ineffective since the infection has usually penetrated too far, but is actually harmful, in that it destroys areas of the protective zone of infiltration with polymorphs, fibrin, and thrombosis which nature has built up to wall off the infection. The uterus is thus a large abscess cavity, and, as in any other abscess, adequate drainage is indicated while bruising or scraping of the lining tissue is definitely contra-indicated.

CONCLUSIONS.

1. The aim of treatment in cases of threatened abortion is to prevent the abortion by means of adequate rest, general and local (morphine).

2. Inevitable aseptic abortions are to be treated conservatively. Excessive haemorrhage is controlled by packing the vagina. Curettage is the last resort.

3. Complete abortions require no further local treatment.

4. Incomplete aseptic abortions are best treated by curettage under strictly aseptic conditions. Conservative treatment is better where there is any danger of sepsis.

5. Sepsis is the most definite contra-indication to intra-uterine manipulation. Curettage may safely and advantageously be performed when the temperature has fallen and remained normal for 5 days.

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TO THE DOCTORS OF ONTARIO

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THE BARNARD-GYE MICROSCOPE

(Discovery of Cancer Germ.)

E. F. Burton, B.A., Ph.D.,
Professor of Physics, University of Toronto.

The medical world was startled last summer by the announcement of Barnard and Gye that they had discovered the germs causing cancer, and found them to be living entities much smaller than anything that could have been observed previously with the highest power of microscope in use. This discovery has awakened fresh interest in the ultramicroscope —an adaptation of the ordinary compound microscope to render visible bodies formerly beyond our ken.

The ordinary high-power microscope may be said to serve two purposes:

(1) To enable the observer to differentiate between two points of light very close together.

(2) To enable the observer to see extremely small isolated particles.

In either case, the purpose of the system of illumination used in the instrument is to render the object as nearly self-luminous as possible.

I. *Rendering Details of Objects Visible.*

In the ordinary use of the microscope it is purpose number (1) in which we are interested; since any microscopic object under observation will have what we might call almost infinitely fine structure, our ability to see detail in the object will depend upon our ability to separate in our field of view any two points which are very close together.

It can be demonstrated fairly simply that if one represents the distance between two neighbouring points on an object by d, the smallest possible value d can have and the points be still separated in the field of view is given by the relation:

$$d = \frac{\lambda}{2\, n \sin A}$$

where λ is the wavelength of the light used for illumination, n, the index of refraction of the medium between the object and the objective of the microscope and A, the angle between the axis of the microscope and the ray from the observed point which just reaches the outer edge of the first lens (the field lens) of the objective. This is also equivalent to:

$$d = \frac{r \,.\, l}{2\, n \,.\, r}$$

where we replace sin A by its value, r being the radius of the field lens of the objective and l the distance from the point observed to the outer edge of the field lens.

We see at once that the only possible ways of making d as small as possible are to make (1) λ as small as possible, (2) n as large as possible, and (3) sin A (or $\frac{r}{l}$) as large as possible: (1) is obtained by using ultraviolet light, (2) by oil immersion, using an oil with the

largest possible index of refraction, while the maximum value possible for (3) is unity. The fullest advantage under (2) and (3) has been worked out by optical manufacturers years ago. The microscope of Barnard and Gye takes advantage of the use of ultraviolet light of very small wave length. Difficulties of procedure crop up in this work from the fact that the ultraviolet light does not give an image on the retina of the eye, although it does affect a photographic plate. As a consequence the observer is not able to look for the small objects with his eye using this light, but must depend on other ways of locating the small objects to be photographed. It is here that we reach the second feature of the Barnard-Gye instrument.

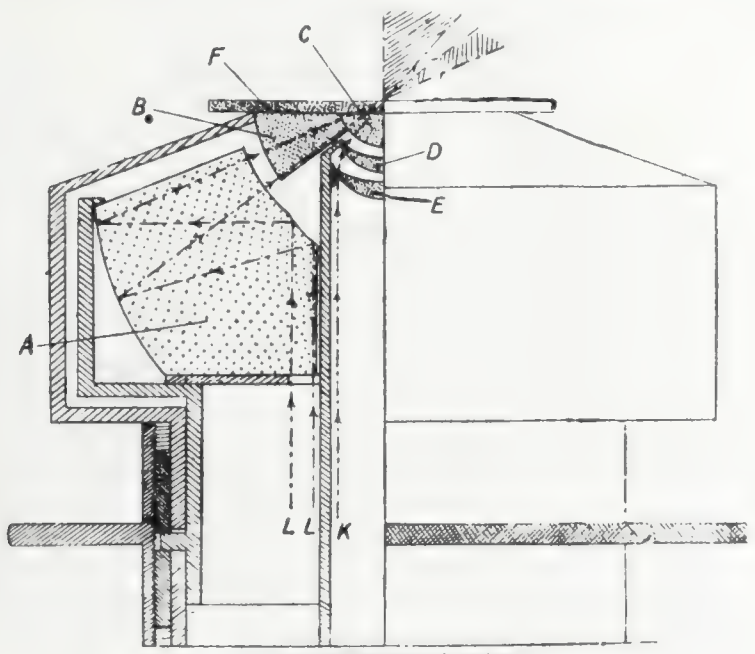
II. *The Ultramicroscopic Illumination.*

It is quite beyond the scope of this paper to take up in detail the various forms of illumination which were included under the term—the ultramicroscope. It will probably be sufficient to say that it is an adaptation to microscopic vision of a very simple every day observation. If one allows a beam of sunlight to enter a darkened room and views the beam from the side, one sees thousands of dust particles floating in the atmosphere of the room—dust particles which are quite invisible if the room is flooded with light. One is made aware of the presence of these dust particles by the light which they scatter laterally, but one cannot obtain any idea of the shape or size of the smallest particles which are visible.

Barnard uses the principle of this method to learn whether or not there are any very small particles in his suspension; then, after making sure of their presence, he switches over to the ordinary form of illumination, but with ultraviolet light, and records what he cannot see with the eye on a series of photographic films.

III. *The Barnard Microscope.*

The accompanying figure copied from The Lancet shows the plan of the construction of the microscope system. For details of mounting, lighting, and preparation of slides reference should be made to the



Combined illuminator in section.

original paper. On the right half of the picture the outer case is shown; on the left side is shown a section through the centre of the instrument.

The essential feature of the instrument is a double kind of illumination: (1) the ordinary axial illumination along K E D consisting of ultraviolet light passing through quartz lenses to illuminate the object at the central point of the quartz plate F; and (2) a special microscopic illumination along L L with ordinary visible light which is focussed by means of special glass (A) and quartz (B) condensers. The illuminating beam (2) is totally reflected at the object to be illuminated, which is a small drop of the liquid medium containing the cancer germs; the cell containing the liquid is of quartz and is fastened to the plate F at its central point. If there are small particles (germs) in the drop of liquid, they will scatter some light from L L and thus make themselves visible through the microscope, just as the dust particles in the darkened room make themselves visible in the beam of sunlight.

The process by which Barnard worked is as follows:

I. The beam of light L L is switched on and the presence of particles in the drop of liquid spotted; nothing can be observed as to their size or shape.

II. L L is shut off and K E D (ultraviolet light) is turned on. Particles cannot be seen but can be photographed; the photograph is made on the photographic plate, just as an image is made on the retina of the eye by visible light, and the ordinary details of the size and shape of particles depicted on the photographic plate. Successive exposures showed a definite growth and division of the germs observed.

Space does not permit any further elaboration of the description, but those interested should refer to the original references given.

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CARCINOMA OF THE RECTUM

Its Pathological Manifestations, with an indication of its Therapy based upon them

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Ellen Mickle Fellow 1926-27

This consideration is designed as an attempt to clarify the controversial opinions prevalent as to the pathological manifestations and types, and an explanation of the almost paradoxical symptomatology in various cases of carcinomata of the rectum, together with an indication of the therapy based upon them.

The close association of the anatomy, pathology and clinical findings will be apparent.

Aetiology: The disease tends to occur more frequently under certain conditions which demand our attention, viz:

1. In the situation of old chronic ulcers.

2. Upon the opening of chronic fistulae.
3. Upon the site of non-malignant strictures.
4. Simple tumours have a tendency to become malignant in time.
5. Tends to occur at points of greatest irritation—exemplified by Lockwood's case of reduplicated descending colon—a carcinoma developing at the junction of the two limbs.
6. It is commonest at the recto-sigmoid Juncture.

Age: May occur at almost any age—most commonly between 40-45.

Sex: Males are slightly to the fore.

SITE: Tuttle's figures place the recto-sigmoid junction first, with 67.0%, rectal ampulla, with 26.3% second, and the anus least common, with 6.7%. Harrison Cripps claims the commonest location to be within the lowest 3 inches.

Carcinoma of the Rectum may be of two varieties, viz.: (1) Epithelioma; (2) Adeno-carcinoma.

Several others are described, *i.e.,* medullary, scirrhus, adenoid and colloid, but these are only forms of adeno-carcinoma, the important difference being in rapidity of growth and the secondary changes they undergo.

The epitheliomatous type is met only at the anal margin, and has the usual characteristics of skin cancer. This may later invade the rectum.

The adeno-carcinomatous type begins in the rectal mucosa. In the so-called scirrhus type, the stroma consists of fibrous tissue largely, being sometimes so dense as to almost obscure the glandular features. These are often the cause of stricture and are of slow growth, causing obstructive symptoms.

Grossly, the adeno-carcinoma is a more or less nodular or cauliflower growth in the mucosa—projecting into the lumen; the surface may or may not be ulcerated, depending on time and traumatism. Occasionally it is polypoid and several cases of multiple primary lesions have been reported.

METASTASIS: This is probably the most important phase of the subject, as upon the knowledge of its method depends so much of the treatment.

The tendency for metastasis to occur late is well recognized—the spread being by one of three routes, viz.:

(1) Direct continuity of tissue.
(2) Lymphatics.
(3) Blood stream—(a) Portal, (b) Systemic.

To understand more fully the spread of this disease one must refer to the most recent works on the anatomy of the rectum, where it is found that the upper limit of the rectum is marked by the following:

(1) The sphincter of O'Beirne at the recto-sigmoid junction.
(2) This is at a level between the 2nd and 3rd vertebrae.
(3) This marks the lowest point where appendices epiploicae are found.
(4) The division of the trunk of the superior haemorrhoidal artery is situated here.

(5) Below this point there is no mesentery.

(6) The longitudinal bands merge into the external coat of the rectum here.

The rectum is furthermore now divided into two anatomical segments which form essential differences in the understanding of the phenomena of this disease's course. The division is based upon the constancy of the situation of the third valve of Houston, at which point one finds—

(1) The lowest point of the peritoneum on the anterior surface.

(2) The lowest point of the valves of Morgagni.

Superiorly one finds:

(1) The gut is peritonealized.

(2) Three muscular tunics are possessed.

(3) All vessels are from the inferior mesenteric artery and vein.

(4) There is *Portal Drainage*.

(5) The nerve supply is from the inferior mesenteric plexus, *i.e.*, sympathetic.

Inferiorly one finds:

(1) There are but two muscular tunics.

(2) The bowel is not peritonealized.

(3) *Vena Caval* Drainage is the rule.

(4) Below the third valve. The lymphatic drainage is via the perineo-pelvi—Abdominal chains.

So one is justified in speaking of a pelvic rectum and an anal rectum and lesions must be classified in reference to this division.

If the growth be below the third valve, the tendency will be for a systemic dissemination then, and if above that area, the portal metastasis will be apparent.

Cancers of the Anal Rectum are in contact with the cellular tissue of the pelvis, the Levatores Ani and numerous lymphatic radicles lead to the sides of the perineum and pelvis, ending in ganglia, four of which are exceedingly important:

(1) Inguino Iliacs; (2) External Hypogastrics; (3) Primary Iliacs and Sacrals; (4) *Abdominally* to the abdomino-recto-sigmoido-colic ganglia there is no limitation by any fibro-serous sheath.

Cancer of the Pelvic Rectum: The lymphatic sphere in this region is reduced to a single chain which ends in the abdomen. So, upon the whole, this has the same characteristics as cancer of the descending colon. This type has a tendency to invade the sigmoid and be invaded by those of the sigmoid or sphincter of O'Beirne region. These cancers are in a measure limited by the fibro-serous sheath.

The pain is always greater in those carcinomata in the anal rectum owing to the central nervous system innervation here—the supply above the third valve being through Auerbach's and Meissener's Plexus and therefore sympathetic. Sharp pain is usually found to be due to irritation of the ulcerated surface.

The nerve supply also accounts for the presence of borborygini and constipation (spasm) in upper lesions—of course some cases of constipation are due to scirrhus obstruction.

The "ballooning" so commonly found above the lesion is considered by Treves to be a nervous manifestation owing to the disappearance upon anaesthetization.

Bleeding is due first to the hyperaemia and great congestion of the mucous membrane, hence is increased by constipation by retardation of the venus return. The haemorrhage later is due to ulceration laying bare a haemorrhoidal vessel of considerable size.

The discharge so frequently encountered is due to secondary infection of ulcerated areas.

Cachexia is a very late manifestation in all cases of cancer of the rectum.

THERAPEUTIC CONSIDERATION:

Too great emphasis cannot be laid upon the importance of early, accurate diagnosis and the essential knowledge of the relationship of the lesion to the rectal segments.

Upon the last factor depends the site of election for operative interference.

The anatomical basis of treatment of these cases would therefore be:

A. *Of the Pelvic Rectum*:

Removal of (1) the tumour which is superior rectal but, by extension, can be recto-sigmoid. (2) The abdominal pedicle and the Recto-Sigmoido—colic ganglion—*i.e.*, all the vertical roots and a part of the sigmoid meso-colon and—in a word—a cancer form zone of lymphatics—whose base corresponds to the intestine and whose summit is at the highest recto-sigmoido-colic glands.

B. *Of the Anal Rectum*:

(1) Removal of the inferior rectal tumour.

(2) All the lymphatics susceptible to being invaded.

(3) The organs or the tissues which can be invaded owing to the lymphatic communications—viz.: the perineal body, ischio-rectal fat, Levatores Ani, uterus and posterior wall of the vagina.

In lesions of the pelvic rectum an attack is justified from the abdominal route alone, whilst in those of the anal rectum, the combined abdominal-perineal operation is imperative.

The importance of utilizing every known aid in diagnosis cannot but be felt if the mortality is to be diminished, and a microscopic report must be demanded for every piece of removed tissue.

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THE MASTER-WORD IN MEDICINE*

PROFESSOR WM. OSLER,
Johns Hopkins University.

It seems a bounden duty on such an occasion to be honest and frank, so I propose to tell you the secret of life as I have seen the game played, and as I have tried to play it myself. You remember in one of the Jungle Stories that when Mowgli wished to be avenged on the villagers he could only get the help of Hathi and his sons by sending them the master-word. This I propose to give you in the hope, yes, in the full assurance, that some of you at least will lay hold upon it to your profit. Though a little one, the master-word looms large in meaning. It is the open sesame to every portal, the great equalizer in the world, the true philosopher's stone, which transmutes all the base metal of humanity into gold. The stupid man among you it will make bright, the bright man brilliant, and the brilliant student steady. With the magic word in your heart all things are possible, and without it all study is vanity and vexation. The miracles of life are with it; the blind see by touch, the deaf hear with eyes, the dumb speak with fingers. To the youth it brings hope, to the middle-aged confidence, to the aged repose. True balm of hurt minds, in its presence the heart of the sorrowful is lightened and consoled. It is directly responsible for all advances in medicine during the past twenty-five centuries. Laying hold upon it Hippocrates made observation and science the warp and woof of our art. Galen so read its meaning that fifteen centuries stopped thinking, and slept until awakened by the *De Fabrica* of Vesalius, which is the very incarnation of the master-word. With its inspiration, Harvey gave an impulse to a larger circulation than he wot of, an impulse which we feel to-day. Hunter sounded all its heights and depths, and stands out in our history as one of the great exemplars of its virtues. With it Virchow smote the rock, and the waters of progress gushed out; while in the hands of Pasteur it proved a very talisman to open to us a new heaven in medicine and a new earth in surgery. Not only has it been the touchstone of progress, but it is the measure of success in every-day life. Not a man before you but is beholden to it for his position here, while he who addresses you has that honor directly in consequence of having had it graven on his heart when he was as you are to-day. And the master-word is *Work,* a little one, as I have said, but fraught with momentous sequences if you can but write it on the tablets of your hearts and bind it upon your foreheads. But there is a serious difficulty in getting you to understand the paramount importance of the work-habit as part of your organization. You are not far from the Tom Sawyer stage with its philosophy "that work consists of whatever a body is obliged to do."

A great many hard things may be said of the work-habit. For most of us it means a hard battle; the few take to it naturally; the many

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prefer idleness and never learn to love labor. Listen to this: "Look at one of your industrious fellows for a moment, I beseech you," says Robert Louis Stevenson. "He sows hurry and reaps indigestion; he puts a vast deal of activity out to interest, and receives a large measure of nervous derangement in return. Either he absents himself entirely from all fellowship, and lives a recluse in a garret, with carpet slippers and a leaden inkpot, or he comes among people swiftly and bitterly, in a contraction of his whole nervous system, to discharge some temper before he returns to work. I do not care how much or how well he works, this fellow is an evil feature in other people's lives." These are the sentiments of an overworked, dejected man; let me quote the motto of his saner moments: "To travel hopefully is better than to arrive, and the true success is in labor." If you wish to learn of the miseries of scholars in order to avoid them, read Part I, Section 2, Member 3, Subsection XV. of that immortal work, the Anatomy of Melancholy, but I am here to warn you against these evils, and to entreat you to form good habits in your student days.

At the outset appreciate clearly the aims and objects each one of you should have in view—a knowledge of disease and its cure, and a knowledge of yourselves. The one, a special education, will make you a practitioner of medicine; the other, an inner education, may make you a truly good man, four square and without a flaw. The one is extrinsic and is largely accomplished by teacher and tutor, by text and by tongue; the other is intrinsic and is the mental salvation to be wrought out by each one for himself. The first may be had without the second; any one of you may become an active practitioner, without ever having had sense enough to realize that through life you have been a fool; or you may have the second without the first, and, without knowing much of the art, you may have the endowments of head and heart that make the little you do possess go very far in the community. With what I hope to infect you is a desire to have a due proportion of each.

How can you take the greatest possible advantage of your capacities with the least possible strain? By cultivating system. I say cultivating advisedly, since some of you will find the acquisition of systematic habits very hard. There are minds congenitally systematic; others have a life-long fight against an inherited tendency to diffuseness and carelessness in work. A few brilliant fellows try to dispense with it altogether, but they are a burden to their brethren and a sore trial to their intimates. I have heard it remarked that order is the badge of an ordinary mind. So it may be, but as practitioners of medicine we have to be thankful to get into their useful class. Let me entreat those of you who are here for the first time to lay to heart what I say on this matter. Forget all else, but take away this counsel of a man who has had to fight a hard battle, and not always a successful one, for the little order he has had in his life; take away with you a profound conviction of the value of system in your work. I appeal to the freshmen especially, because you to-day make a beginning, and your future career depends very much upon the habits you will form during this session. To follow the routine of the classes is easy

enough, but to take routine into every part of your daily life is a hard task. Some of you will start out joyfully as did Christian and Hopeful, and for many days will journey safely towards the Delectable Mountains, dreaming of them and not thinking of disaster until you find yourselves in the strong captivity of Doubt and under the grinding tyranny of Despair. You have been over confident. Begin again and more cautiously. No student escapes wholly from these perils and trials; be not disheartened, expect them. Let each hour of the day have its allotted duty, and cultivate that power of concentration which grows with its exercise, so that the attention neither flags nor wavers, but settles with a bull-dog tenacity on the subject before you. Constant repetition makes a good habit fit easily in your mind, and by the end of the session you may have gained that most precious of all knowledge —the power to work. Do not underestimate the difficulty you will have in wringing from your reluctant selves the stern determination to exact the uttermost minute on your schedule. Do not get too interested in one study at the expense of another, but so map out your day that due allowance is given to each. Only in this way can the average student get the best that he can out of his capacities. And it is worth all the pains and trouble he can possibly take for the ultimate gain—if he can reach his doctorate with system so ingrained that it has become an integral part of his being. The artistic sense of perfection in work is another much to be desired quality to be cultivated. No matter how trifling the matter on hand, do it with a feeling that it demands the best that is in you, and when done look it over with a critical eye, not sparing a strict judgment of yourself. This it is that makes anatomy a student's touch-stone. Take the man who does his "part" to perfection, who has got out all there is in it, who labors over the tags of connective tissue and who demonstrates Meckel's ganglion in his part—this is the fellow in after years who is apt in emergencies, who saves a leg badly smashed in a railway accident, or fights out to the finish, never knowing when he is beaten, in a case of typhoid fever.

Learn to love the freedom of the student life, only too quickly to pass away; the absence of the coarser cares of after days, the joy in comradeship, the delight in new work, the happiness in knowing that you are making progress. Once only can you enjoy these pleasures. The seclusion of the student life is not always good for a man, particularly for those of you who will afterwards engage in general practice, since you will miss that faculty of intercourse upon which often the doctor's success depends. On the other hand, sequestration is essential for those of you with high ambitions proportionate to your capacity. It was for such that St. Chrysostom gave his famous counsel, "Depart from the highways and transplant thyself into some enclosed ground, for it is hard for a tree that stands by the wayside to keep its fruit till it be ripe."

Much study is not only believed to be a weariness of the flesh, but also an active cause of ill-health of mind, in all grades and phases. I deny that work, legitimate work, has anything to do with this. It is that foul fiend Worry who is responsible for a large majority of the cases. The more carefully one looks into the causes of nervous breakdown in

students, the less important is work *per se* as a factor. There are a few cases of genuine overwork, but they are not common. Of the causes of worry in the student life there are three of prime importance to which I may briefly refer.

An anticipatory attitude of mind, a perpetual forecasting disturbs the even tenor of his way and leads to disaster. Years ago a sentence in one of Carlyle's essays made a lasting impression on me: "Our duty is not to *see* what lies dimly at a distance, but to *do* what lies clearly at hand". I have long maintained that the best motto for a student is, "Take no thought for the morrow." Let the day's work suffice; live for it, regardless of what the future has in store, believing that to-morrow should take thought for the things of itself. There is no such safeguard against the morbid apprehensions about the future, the dread of examinations and the doubt of the ultimate success. Nor is there any risk that such an attitude may breed carelessness. On the contrary, the absorption in the duty of the hour is in itself the best guarantee of ultimate success. "He that observeth the wind shall not sow, and he that regardeth the clouds shall not reap", which means you cannot work profitably with your mind set upon the future.

Professional work of any sort tends to narrow the mind, to limit the point of view and to put a hall-mark on a man of a most unmistakable kind. On the one hand are the intense, ardent natures, absorbed in their studies and quickly losing interest in everything but their profession, while other faculties and interests "fust" unused. On the other hand are the bovine brethren who think of nothing but the treadmill and the corn. From very different causes, the one from concentration, the other from apathy, both are apt to neglect those outside studies that widen the sympathies and help a man to get the best there is out of life. Like art, medicine is an exacting mistress, and in the pursuit of one of the scientific branches, sometimes, too, in practice, not a portion of a man's spirit may be left free for other distractions, but this does not often happen. On account of the intimate personal nature of his work, the medical man, perhaps more than any other man, needs that higher education of which Plato speaks,—"that education in virtue from youth upwards, which enables a man eagerly to pursue the ideal perfection." It is not for all, nor can all attain to it, but there is comfort and help in the pursuit, even though the end is never reached. For a large majority the daily round and the common task furnish more than enough to satisfy their heart's desire, and there seems no room left for anything else. Like the good, easy man whom Milton scores in the Areopagitica, whose religion was a "traffic so entangled that of all mysteries he could not skill to keep a stock going upon that trade" and handed it over with all the locks and keys to "a divine of note and estimation", so it is with many of us in the matter of this higher education. No longer intrinsic, wrought in us and ingrained, it has become, in Milton phrase, a "dividual movable", handed over nowadays to the daily press or to the haphazard instruction of the pulpit, the platform or the magazines. Like a good many other things, it comes in a better and more enduring form if not too consciously sought. The all-important thing is to get

a relish for the good company of the race in a daily intercourse with some of the great minds of all ages. Now, in the spring-time of life, pick your intimates among them, and begin a systematic cultivation of their works. Many of you will need a strong leaven to raise you above the dough in which it will be your lot to labour. Uncongenial surroundings, an ever-present dissonance between the aspirations within and the actualities without, the oppressive discords of human society, the bitter tragedies of life, the *lacrymae rerum,* besides the hidden springs of which we sit in sad despair—all these tend to foster in some natures a cynicism quite foreign to our vocation, and to which this inner education offers the best antidote. Personal contact with men of high purpose and character will help a man to make a start—to have the desire, at least, but in its fullness this culture—for that word best expresses it—has to be wrought out by each one for himself. Start at once a bed-side library and spend the last half hour of the day in communion with the saints of humanity. There are great lessons to be learned from Job and from David, from Isaiah and St. Paul. Taught by Shakespeare you may take your intellectual and moral measure with singular precision. Learn to love Epictetus and Marcus Aurelius. Should you be so fortunate as to be born a Platonist, Jowett will introduce you to the great master through whom alone we can think in certain levels, and whose perpetual modernness startles and delights. Montaigne will teach you moderation in all things, and to be "sealed of his tribe" is a special privilege. We have in the profession only a few great literary heroes of the first rank, the friendship and counsel of two of whom you cannot too earnestly seek. Sir Thomas Browne's *Religio Medici* should be your pocket companion, while from the Breakfast Table Series of Oliver Wendell Holmes you can glean a philosophy of life peculiarly suited to the needs of a physician. There are at least a dozen or more works which would be helpful in getting wisdom in life which only comes to those who earnestly seek it.

A conscientious pursuit of Plato's ideal perfection may teach you the three great lessons of life. You may learn to consume your own smoke. The atmosphere is darkened by the murmurings and whimperings of men and women over the non-essentials, the trifles that are inevitably incident to the hurly burly of the day's routine. Things cannot always go your way. Learn to accept in silence the minor aggravations, cultivate the gift of taciturnity and consume your own smoke with an extra draught of hard work, so that those about you may not be annoyed with the dust and soot of your complaints. More than any other the practitioner of medicine may illustrate the second great lesson, that we are here not to get all we can out of life for ourselves, but to try to make the lives of others happier. This is the essence of that oft-repeated admonition of Christ, "He that findeth his life shall lose it, and he that loseth his life for my sake shall find it", on which hard saying if the children of this generation would only lay hold, there would be less misery and discontent in the world. It is not possible for anyone to have better opportunities to live this lesson than you will enjoy. The practice of medicine is an art, not a trade, a calling, not a business, a calling in

which your heart will be exercised equally with your head. Often the best part of your work will have nothing to do with potions and powders, but with the exercise of an influence of the strong upon the weak, of the righteous upon the wicked, of the wise upon the foolish. To you, as the trusted family counsellor, the father will come with his anxieties, the mother with her hidden grief, the daughter with her trials, and the son with his follies. Fully one-third of the work you do will be entered in other books than yours. Courage and cheerfulness will not only carry you over the rough places of life, but will enable you to bring comfort and help to the weak-hearted and will console you in the sad hours when, like little Uncle Toby, you have "to whistle that you may not weep".

And the third lesson you may learn is the hardest of all—that the law of the higher life is only fulfilled by love and charity. Many a physician whose daily work is a daily round of beneficence will say hard things and think hard thoughts of a colleague. No sin will so easily beset you as uncharitableness towards your brother practitioner. So strong is the personal element in the practice of medicine, and so many are the wagging tongues in every parish, that evil-speaking, lying, and slandering find a shining mark in the lapses and mistakes which are inevitable in our work. There is no reason for discord and disagreement, and the only way to avoid trouble is to have two plain rules. From the day you begin practice never under any circumstances listen to a tale told to the detriment of a brother practitioner. And when any dispute or trouble does arise, go frankly, ere sunset, and talk the matter over, in which way you may gain a brother and a friend. Very easy to carry out, you may think! Far from it; there is no harder battle to fight. Theoretically there seems to be no difficulty, but when the concrete wound is rankling, and after Mrs. Jones has rubbed in the cayenne pepper by declaring that Dr. J. told her in confidence of your shocking bungling, your attitude of mind is that you would rather see him in purgatory than make advances towards reconciliation. Wait until the day of your trial comes and then remember my words.

And in closing, may I say a few words to the younger practitioners in the audience whose activities will wax not wane with the growing years of the century which opens so auspiciously for this school, for this city, and for our country. You enter a noble heritage, made by no efforts of your own, but by the generations of men who have unselfishly sought to do the best they could for suffering mankind. Much has been done, much remains to do; a way has been opened, and to the possibilities in the scientific development of medicine there seems to be no limit. Except in its application, as general practitioners, you will not have much to do with this. Yours is a higher and more sacred duty. Think not to light a light to shine before men that they may see your good works; contrariwise you belong to the great army of quiet workers, physicians and priests, sisters and nurses, all over the world, the members of which strive not, neither do they cry, nor are their voices heard in the streets, but to them is given the ministry of consolation in sorrow, need, and sickness. Like the ideal wife of whom Plutarch speaks, the best doctor is often the one of whom the public hears the

least; but nowadays, in the fierce light that beats upon the earth, it is increasingly difficult to lead the secluded life in which our best work is done. To you the silent workers of the ranks, in villages and country districts, in the slums of our large cities, in the mining camps and factory towns, in the homes of the rich, and in the hovels of the poor, to you is given the harder task of illustrating with your lives the Hippocratic standards of Learning, of Sagacity, of Humanity, and of Probity. Of learning, that you may apply in your practice the best that is known in our art, and that with the increase in your knowledge there may be an increase in that priceless endowment of sagacity, so that to all, everywhere, skilled succor may come in the hour of need. Of a humanity, that will show in your daily life tenderness and consideration to the weak, infinite pity to the suffering, and broad charity to all. Of a probity, that will make you under all circumstances true to yourselves, true to your high calling, and true to your fellow man.

THE TREATMENT OF CHRONIC ULCERS OF THE STOMACH AND DUODENUM

C. R. Balfour, B.A. '26

It would serve no purpose to add to the already outworn controversy over medical and surgical treatment of chronic gastric and duodenal ulcers. It does seem imperative that some definite plan of action be wrested from the diversity of opinion in both clinical teaching and literature. Such a plan must be conceived individually and no apology need be offered if it lacks authority.

Chronic peptic ulcer is in all senses of the word chronic. It may exist for many years without symptoms, or may have symptoms at intervals of many months, recurring year after year. Whether painful or not its actual appearance on opening the stomach is just the same. However, the patient demanding treatment has symptoms, a disability, and a successful cure must not only relieve the symptoms, it must prevent their recurrence. For this reason the results of treatment must not be estimated before two or three years have elapsed.

It is of first importance that an accurate diagnosis be made, the position of the ulcer, if possible its duration, and the complications, if any, determined. Most of this information can be obtained by a careful systematic history. Nevertheless, whenever possible, confirmation by rodography, gastric analysis, and examination of the stools for the presence of occult blood should be obtained. No case in a man over 45 must ever be treated without satisfactorily ruling out the possibility of carcinoma. Having obtained this information, treatment must be selected to suit the individual case.

Selection of Cases

If any case can be treated successfully by medical treatment it is the early case with just two or three attacks. Medical treatment, to be of any value, must be persistent and rigorous. It is just in such cases

that the doctor finds most difficulty for the patient will not submit to such a treatment when his symptoms are not causing him any great disability. He is given a powder, told about regulating a diet and in a few days his pain disappears. The same thing happens next year and again the next. It is not until five or six years have passed that he will realize the persistency of his trouble and submit to a treatment which has only a 20% chance but which would have given him every hope of cure at first. The only hope for a cure by medical treatment is in the comparatively early uncomplicated cases. Nielsen, in a recent paper, gives the results of a medical treatment a little less strict than that used largely in this continent based on the work of Sippy. In cases observed for at least two years he obtained 60% cures in cases of less than half a year of symptoms, 37% cures when symptoms had existed 1 to 3 years, 20% with symptoms of 3 to 5 years duration and 10% cured with symptoms for 5 to 10 years.

There are many cases which must be referred at once to Surgery. T. I. Bennet gives a list of such cases that has merited the approval of W. H. Mayo. They are as follows:

1. "All cases with gross pyloric or duodenal stenosis, or with hour glass formation due to contraction of a chronic ulcer of the lesser curvature.

2. All cases which have relapsed after a thorough course of medical treatment.

3. All cases which have recurred in spite of treatment during many years.

4. Cases in which there has been recurrent and dangerous haemorrhage in spite of careful medical treatment.

5. Cases where X-ray examination discloses deep ulceration with adhesions to neighbouring structures.

6. Cases in which there is a strong suspicion of malignant change in a chronic ulcer.

7. Cases where economic position makes proper medical treatment impossible."

It would seem fair to state that patients who have had symptoms for five years or more should be treated surgically as the danger from complications, from haemorrhage and perforation outweighs the slim chance for cure under medical treatment and the possibility of undesirable surgical results. Only those comparatively early, uncomplicated cases can anticipate any satisfaction from medical treatment.

Medical Treatment

Any form of treatment must fulfil three requirements; it must have three aims.

(1) To secure the optimum rest for the stomach, compatible with sufficient nutrition for the body.

(2) The inhibition or neutralization of excessive acid secretion.

(3) As a preliminary to these the eradication of focal sepsis.

Rest must be general physical inactivity for it has been shown that muscular activity does increase gastric and duodenal tonicity. At least three weeks in bed is advocated or two weeks after the complete disappearance of all pain and tenderness or of occult blood from the stool. Local rest must be obtained by giving small nutritive meals. It has

been calculated that the average meal of ordinary size produces over a thousand peristaltic waves in the pyloric antrum; it does not require much imagination to visualize the effect of this on healing. Meals should be so spaced and so designed that each is reduced to its minimum bulk in all supplying little more than basal requirement. The diet should be designed to produce a minimal secretion, *i.e.*, chiefly of carbohydrates and fats and avoiding excess protein, especially in the form of meats or meat extracts. Milk is a more or less stimulating food, but its ability to enter into rapid combination with free hydrochloric acid more than offsets this. The importance of neutralizing acids by means of alkaline salts has been overemphasized as the acidity, rather than spasm, was once believed to be the cause of symptoms.

The removal of bad teeth and tonsils or of a chronic appendix is of great importance and is often directly followed by marked improvement. Most authorities believe that infection is a very prominent etiological factor in the formation of an ulcer.

Sippy was really the first to apply these principles to the treatment of chronic ulcer and his diet still remains classic. He began with three ounces of a mixture of equal parts milk and cream every hour from 7 a.m. to 7 p.m., increasing the diet gradually after two or three days by soft-boiled eggs, cereals, soups, etc., to a definite schedule. Midway between the feedings he gave a powder containing 10 grains of heavy calcined magnesia and sodium bicarbonate alternating with a powder containing 10 grains calcium carbonate and 30 grains of sodium bicarbonate. The principles of the treatment are still maintained but the details are usually modified. In the diet used in this hospital considerable modification has been made for these reasons: the high percentage of fat is usually tolerated poorly, the doses of alkali are too great, several patients having been driven into alkalosis, and the symptoms of pain and discomfort usually subside in 24 to 48 hours. The patients are given a light diet two or three days after the pain has disappeared. The diet is as follows:

Breakfast—Cereal, bread and butter.
10.30 a.m.—Milk and biscuit.
12 noon—Chicken, oysters, fish, except salmon.
Spinach, tomatoes, string beans, lettuce.
Sago, rice, custard, etc.
3.30 p.m.—Milk and biscuit.
6.30 p.m.—Cooked apricots, prunes, apples, etc.
Puddings, etc., as at noon.
Bread and butter, milk.
9.30 p.m.—Milk and biscuit.

Throughout the day the following powder is given after meals and at bed time:

Bismuth subcarbonate
Magnesium carbonate āā grs. x.

This is routine treatment for ulcers near the pylorus or in the duodenum. For ulcers in the lesser curvature of the stomach, duodenal feeding by means of a tube is found to be successful. The patient is fed a milk and cream mixture with added lactose every two hours between 6 a.m.

and 8 p.m. with water before and after each feeding. No alkalies are given.

Belladonna is the only drug having any direct action on the condition. Its action is antisecretory and antispasmodic, and by relaxing the pylorus it decreases the acidity by allowing duodenal reflux. It should be given in 5 minim doses a quarter of an hour before every alternate feeding.

After treatment is almost as important as the intensive phase. The patient should have a holiday if possible and maintain a careful diet for at least three months. He may then return to normal life under the following restrictions (Ryle):

1. Hunger to be avoided by frequent meals.
2. Overstress and mental activity at meal time to be avoided.
3. Smoking must be moderate and only on a full stomach.
4. Irritating foods to be avoided—food chewed slowly.
5. Dentist to be visited twice a year.
6. Fats and farinaceous foods should still be preferred and olive oil or cod-liver oil preparation in winter taken with breakfast and the evening meal.

Such a treatment as this does produce good results when patient and physician have the opportunity and time to carry it out. Much less should not be called medical treatment. Unfortunately most physicians look upon it as an ideal only to be attained in very rare instances, and perhaps they can justly place all the blame on the patients.

Surgical Treatment

There is no doubt that the modern operations for chronic ulcer are notably successful, perhaps among the most satisfactory operations in surgery. The mortality is very low considering the radical nature of the operation and most large centres produce figures indicating 90% cures, *i.e.*, absolute freedom from all symptoms when followed for at least two years. This figure may be too high and there are many men who say so, pointing to patients in their care, who are the victims of some operation years ago, an operation performed by a most reliable surgeon too. Here as elsewhere in medicine, the mistakes of the unskilled are numerous and should not be allowed to discredit the excellent work that is being done.

The actual method of operation need not be described. Surgery in this instance might almost be accused of fashion: one certainly is never sure of having the latest method to relate. It was not long ago when all pyloric ulcers were treated by simple gastro-enterostomy, a very satisfactory operation and one which still receives the unqualified support of Sherren in uncomplicated cases. Such an operation is rarely done now in this hospital except under special circumstances, the various forms of partial gastrectomy having almost entirely replaced it. Partial gastrectomy is nearly always necessary when complications exist, but its greatest value is that the whole cancer-bearing area of the stomach is removed, certainly an important consideration whether the cancer be considered to arise from the ulcer border or independently. Balfour of Mayo's has collected 76 cases of cancer after operation for ulcer (simple gastro-enterostomy) and of these he found 40 which had developed evidence of

malignancy within two years of the operation. However, the English supporters of the more simple operation claim that the increase in mortality following a more general use of partial gastrectomy will be greater than the number of deaths due to the later development of cancer. Surgical treatment is satisfactory, in that long lists of cases can be shown in which cure was complete with no apparent impairment of gastro-intestinal function over a considerable period of time. It is most often the only hope for the possessor of a chronic ulcer.

APPENDICITIS WITH SYMPTOMS REFERABLE TO THE GENITO-URINARY TRACT

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The late Sir Frederick Treves, referring to the position of the appendix vermiformis in its relation to the other abdominal viscera, said, "The only constant thing about its position is its inconstancy". This fact can be emphasized by every experienced surgeon, and the varying relations of the appendix may be made to account for many modifications which must be made of the standard set of symptoms and signs taught by Lawson Tait, and, in Toronto, by his pupil, the late Professor J. F. W. Ross. These, as every serious student knows, are "pain in the abdomen coming on suddenly and referred to the umbilicus, vomiting, tenderness in the right iliac fossa, with rigidity in the lower segment of the right rectus abdominis muscle". I wish briefly to report four cases in which the symptoms and signs all seemed, in the early stages, to point to disturbance in the genito-urinary tract.

(1) A young man of twenty-four was seized with a sudden pain in the right loin, which rapidly became severe. He vomited once, and, when seen by his physician, described his pain as being located over the lower pole of the right kidney. A consultant saw him the following day and found that maximum tenderness was elicited by pressure directed towards the kidney from behind. Two days later he was brought to the hospital with right rectus rigidity, elevated temperature and leucocytosis. The urinary findings were normal. Operation disclosed a gangrenous appendix lying behind the caecum and pointing upward with its tip near the lower pole of the right kidney. There was a large abscess, which was drained and the appendix removed. Thirty days after operation and three weeks after all drains had been removed, a severe haemorrhage (secondary) occurred, from which the patient died.

(2) A young man of twenty-five was seized with a sudden pain referred to his bladder. He had had a similar attack a month before and was diagnosed as having vesicular calculus. The pain grew worse and in a few hours he vomited. His physician saw him at midnight, examined him carefully and gave him an enema. The bowels moved freely but the symptoms persisted. He had an increasingly frequent

desire to pass urine. When the bladder was empty there was an amelioration of symptoms, but the slightest distension brought an aggravation of the pain. On the fifth day the physician made his usual examination in the morning and found no resistance in palpating the abdomen. In the afternoon I found him with general rigidity, elevated temperature, rapid pulse and a large fluctuant mass bulging into the anterior wall of the rectum. I removed a gangrened appendix and drained a large abscess which lay between the bladder and the rectum. The man recovered.

(3) A commercial traveller was taken sick as he was returning from his weekly trip on a Saturday. He had frequency of urination with blood in the urine. His symptoms persisted, but on Monday he went out to do business. He was too sick to continue and returned at noon. His physician saw him and found much blood in the urine and marked frequency. His temperature was slightly elevated and his pulse rate was high. This went on until Thursday, when he became much worse and right rectus rigidity developed. He was brought to the hospital, a leucocyte count was made and found to be 20,000 per ccm. Operation revealed a long appendix lying in relation to the lower end of the right ureter and surrounded by a large abscess. This patient recovered.

(4) A woman sixty years of age was seized with a severe pain in the region of the right kidney, and called her physician. He found blood in the urine and conducted his treatment on this symptom. Thirty days later she was sent to the hospital for cystoscopic examination. She was found in an advanced stage of toxaemia, with a large tender mass in the abdomen between the anterior superior spine of the right ilium and the costal margin. A large abscess in the right kidney pouch was drained. A gangrenous appendix traced from the caecum into the posterior wall of the abscess cavity, but was not disturbed. Drainage was quickly provided and the patient hurried back to bed. In thirty six hours she died.

The fuller discussion of any one of these cases would take more space than is at my disposal. Case number two is the most easily explained, but it is mere speculation to try to account for the haematuria in cases three and four. The urine was not separated from the kidneys, so that I have no answer to those who would suggest that the haematuria came from kidneys irritated by sepsis originating in the appendix. Ashurst, writing in the Journal of the American Medical Association, 1922, describes a case similar to number three, in which normal urine was obtained from the left kidney. An extension of the inflammatory process to the ureter itself is the simpler explanation. Ashurst's case and mine occurred at about the same time, but he forestalled me in his report, which is much more complete than mine could have been, as I was unfortunate in not having seen any of my cases until a diagnosis of suppuration within the abdomen was clear and immediate operation imperative. The tragedy of case number one is still unexplained, as an autopsy was not permitted. It was also refused in case number four.

LORD LISTER

By C. O. White, '25

Lord Lister, born April 5th, 1827, at Upton House, London, was the son of the daughter of Anthony Harris of Maryport, Cumberland, and Joseph Lister. Young Lister attended school at Grove House, Tottenham, until 1844, when he proceeded to the University College on Gower Street, in London. Lister matriculated in 1845, and two years later qualified for his B.A. degree. Following this, at twenty years of age, Lister attended University College Hospital and its Medical School, where in 1852 he obtained the degree of M.B. (London), won a gold medal and scholarship in surgery, and became a Fellow of the Royal College of Surgeons.

Lister's first piece of research was carried out in 1852, when he made a microscopic study of the iris of an eye, which a surgeon friend of his had occasion to remove. The report was published in the leading microscopical journal. This was quite an honour for a student. In his surgical studies Lister became first, dresser and then house-surgeon to John Eric Erichsen, the Anglo-Dane, and author of one of the most famous text-books of surgery in the English language. The putrefaction in wounds was supposed to be due to the oxygen in the atmosphere, which sets up fermentation in the juices of the wound. Lister saw that if sometimes caustics burnt away the disease, clearly they burnt away not the oxygen of the air, but something purely local, in the wound itself. This "something", he believed, was the cause of the disease. Lister saw specks in the diseased tissue under his microscope, about which he said: "I imagined they might be the materies morbi in the form of some kind of fungus". Lister, therefore, merely held in his thought the possibility of a minute living organism as the local cause of the disease.

William Sharpey, Professor of Physiology, under whom Lister had studied, knew the value of personality in developing genius, so when Lister had finished his house-surgeoncy at the University College Hospital, Sharpey gave him a letter of recommendation, and sent him off upon a medical pilgrimage to Edinburgh, where his friend Syme had already been Professor of Clinical Surgery for twenty years.

James Syme was born in Edinburgh; he reaped his fame in Edinburgh; and he died in Edinburgh. Syme was the finest surgeon of his day. Fearlessness, firmness, aptness, swiftness, and sureness, were said to be Syme's qualities as a surgeon. When twenty-four years of age Syme did an amputation through the hip-joint for the first time in Scotland.

In 1852 Lister was sent by Sharpey to see Syme, where it was arranged that Lister should stay in the Scottish capital and become Syme's house-surgeon in the Edinburgh Infirmary. "Millbank", Syme's home on the outskirts of Edinburgh, was thrown open to Lister. The home consisted of three children by Syme's second wife, and two daughters, Agnes and Lucy, by his previous marriage.

Lister and Syme undertook many new and previously unperformed operations, such as tying one of the Carotid arteries for a stab wound. Lister was given a second house-surgeoncy, which lasted until 1855, when he was appointed assistant surgeon to the infirmary, retaining his connection wth Syme. At the same time Lister was made a lecturer, qualifying students for the Examinations of the University and College of Surgeons.

Lister fell in love with Agnes Syme, and they were married April 23rd, 1856. They had no children, but his married life was very happy, and his wife worked by his side and took down the accounts he gave her of his observations. The Listers lived at 4 Rutland Street, in Edinburgh.

Lister carried out his experiments at abattoirs or in his own home, upon various animals, either dead or anaesthetized, or on the frog after he had "pithed" it. Vivisection, he declared, had been essential to his success. Lister first accurately described the process of inflammation; described the circular muscle of arteries and their nervous control. He watched the effect of mechanical irritants on the web of a frog's foot under the microscope.

At the end of 1859, Mr. James Lawrie, the Professor of Clinical Surgery in the University of Glasgow, died. In February, 1860, Lister was appointed to be his successor, being then thirty-nine years of age. For his work on inflammation Lister was made a Fellow of the Royal Society. Lister's appointment did not carry with it an appointment as surgeon to the Glasgow Infirmary, which was separate from the University.

When Lister first went to Glasgow he found in the wards that every wound discharged pus freely, and putrefactive changes occurred in the discharges of all; and again, septicaemia, secondary haemorrhage, tetanus, erysipelas, pyaemia, and hospital gangrene were never absent from the hospital wards, and at times hospital gangrene and pyaemia became alarmingly epidemic.

Lister's first work in antisepsis was in a case of compound fracture. In Glasgow, in 1861, Lister for the first time had full command and responsibility in his wards. The extreme cleanliness that now distinguishes the doctor is the outcome of Lister's discoveries, for before Lister, the doctor paid no more heed to cleanliness than any other man. Lister discovered in the work of Louis Pasteur the key to his problem of ward infection.

In 1683, Leeuwenhock discovered microbes, and in 1836 Caignard Latour published experiments to prove that minute specks in yeast were alive. Pasteur repeated the observations of Latour, and watched yeast cells grow and multiply while sugar turned to alcohol. Pasteur said these minute living bodies could live like fish without air, or in the air. Lister saw the vision of countless minute enemies awaiting the paralysis of the living tissues unprotected by the skin. Lister set out to destroy the microbes and to prevent any fresh ones getting to the wound. He found carbolic acid would kill the microbes. The blood mingled with the carbolic and formed a hard crust, the famous Lister Antiseptic Scab.

Lister next opened and drained chronic abscesses, and he published an article about it in the Lancet. At the thirty-seventh meeting of the British Medical Association, at Leeds, the remarks on Lister's work were very skeptical.

Lister noticed that living tissues could eat up dead bone and dead blood-crust, and wondered why they should not also eat up some form of ligature. He tied an artery in a calf's neck with catgut, and found the ligature became absorbed.

Lister, due to Syme having a stroke, was appointed Professor of Surgery in Edinburgh University, in succession to Syme, in 1869. Dr. Saxtorph, Professor of Surgery in the University of Copenhagen, visited Lister in Glasgow, where he remained for a considerable time. Then on return to Copenhagen he worked wonders in his wards following Lister's methods.

Lister published his first successes in the Lancet of 1867. Sir James Simpson attacked Lister in the same paper, by saying that Dr. Lemaire had bestowed great thought and attention upon the use of carbolic acid, and, in that respect, as well as originality, he left Professor Lister very far behind him. Lister replied to the article merely by defending his own statements. The London surgeons also refused any countenance to the germ theory of putrefaction. At the meeting of the British Medical Association at Leeds, in 1869, Mr. Nunneley felt sure some great fallacy lay at the bottom of Pasteur's and Lister's work. Lister again replied in the Lancet.

By sterilizing dishes and putting milk in them Lister was able to keep the milk longer.

In 1873 the Lancet devoted a leading article to decrying the germ theory. Von Nussbaum, in the Munich State Hospital, gave the first statistical proof of the germ theory and antisepsis results.

Lister wrote, in reply to the Governors of King's College Hospital, that in the event of his being given full opportunities for teaching of clinical surgery, being allotted separate wards to manage, to which he could appoint his trained Edinburgh house-surgeons, dressers, and nurses, he would accept the appointment of Professor of Clinical Surgery to King's College Hospital.

In London, Lister's operations and successes were watched and his results verified. At this time Lister had an apparatus which sprayed the air around the operating table with a carbolic solution, to free the air from germs, but as his results did not improve by its use he soon abandoned it.

In 1892, at Pasteur's Jubilee, Lister and Pasteur met, and Pasteur kissed Lister upon the public platform. Lister was made president of the British Royal Society, and on the death of his wife, Lister retired into seclusion in France, and February 10th, 1912, died.

THE OBLIGATION OF THE GENERAL PRACTITIONER IN THE TREATMENT OF COMMON EYE CONDITIONS

W. H. Lowry, M.D., C.M.,
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This article is being written to catch the eye of the senior student, in the hope that it will stimulate him to become familiar with the use of the ophthalmoscope, and to get a working knowledge of common eye conditions before he gets out of touch with his teachers and the material available at the hospitals. It seems a great pity that the general practitioner, as a rule, does not use the ophthalmoscope, knows nothing about the relief of refractive errors by glasses, and has only a hazy knowledge of the treatment of common eye disorders. Indeed, we frequently have our patients tell us their doctor has told them frankly, "I don't know anything about eyes." The result is that people are seeking advice from opticians rather than their family doctor, who ought to be much more competent to give such advice with his knowledge of the patient's physical condition and environment. The optician thus becomes the eye doctor, while the practitioner misses a lot of work which is easy, accurate and satisfactory both for himself and his patient.

Both the students and the teachers are to blame for this very serious condition of affairs. The teacher does not get the student sufficiently interested in eye work, and the student does not take study of eye conditions seriously enough, feeling that Ophthalmology is not a plucking subject. As I heard one student remark to another who was on his way to his oral examination, "Don't be afraid of Eyes." It would be a drastic but yet, I think, a justifiable remedy to star a few of the least informed or anyone who is unable to make use of the ophthalmoscope, for why should the student not be able to diagnose a corneal ulcer just as well as he would a bowel obstruction, particularly as the former is much easier.

It seems to me that the practitioner should be able to take care of most of the common eye conditions such as foreign body in the cornea, conjunctivitis, iritis, corneal ulcers and keratitis, and be able to diagnose glaucoma, cataract, optic neuritis, retinal haemorrhages and conditions requiring surgical treatment. He should be very careful, though, about tackling eye surgery, unless he has had a lot of experience, for there are many and serious pitfalls. He also ought to be able to estimate errors of refraction and to prescribe glasses for his patients, for he is the one best able to know whether it should be, glasses required, or anemia corrected, knowing the physical condition of the individual. I am quite sure if this work were done by the family doctor there would not be so many young people wearing glasses for trivial refractive errors, as we see everywhere.

It might be well to run through briefly a few examples to illustrate the general run of eye mishaps which, if the practitioner takes care of them properly, he can spare his patients a lot of pain, expense, and probably impairment of sight.

1. A farmer working in the harvest field gets a corneal abrasion from a sheaf of grain. He keeps on working in the sun and wind, and in two days' time he has a very painful eye. If he be given a drop of Atropine and a pair of dark glasses he can probably go on with his work in comfort, and be well in a few days. If, however, he be given Argyrol or Zinc Sulphate, as is frequently done, he will have an iritis as well as the abrasion, and he will be in for a lot of trouble, what with loss of time, iritic adhesions and impairment of sight from corneal scar.

2. A child, with a running nose, a mouth breather, becomes very sensitive to light, has lachrymation and excoriation about the eyelids and nares. Most likely a corneal ulcer is present, and again Atropine and dark glasses will give comfort. If the doctor cleans out the adenoids and unhealthy tonsils, which the child probably has, the eyes will get well promptly and with little if any scar. To omit this treatment, and give Yellow Oxide ointment or Argyrol, as is often done, the ulcer extends in depth and area, leaving a scar, which hinders the sight seriously, while the child suffers exceedingly in the meantime.

3. A young man comes in with a painful and watery eye, and some dimness of sight. The pupil is small, and reacts sluggishly to light or not at all. This the doctor should recognise as iritis, and he should get the pupil dilated with Atropine promptly to prevent the immobile and sticky iris from adhering to the lens capsule, and to prevent the occlusion of the pupil with inflammatory material.

4. An elderly patient comes in complaining of severe pain in the eye or in the vicinity of the eye, and there is some dimness of sight. The eye is running water, the cornea is steamy, the pupil is dilated and the eye is hard. The practitioner should suspect an attack of glaucoma and at once get his patient within reach of surgical treatment before the sight is impaired or perhaps lost.

5. A mechanic is working with a hammer and cold chisel and a piece of metal strikes his eye. He has perhaps little pain, his fellow workmen see nothing in the eye, and he goes on with his work. The next day, however, his sight is dim, and he consults his doctor, who, if he examines carefully, will see a small wound in the cornea, a corresponding hole in the iris and a hazy lens. There is probably a piece of steel in the man's eye, and the doctor must get him within reach of an X Ray machine to complete the diagnosis. If this be positive it is imperative to get the patient to a centre where the steel can be removed by electro-magnet.

These are the cases one is sure to meet with in practice, and he should have little difficulty in recognising any one of them, certainly less difficulty than diagnosing a hidden abdominal condition. The drugs the doctor will require will be few and inexpensive. Cocaine, Homatropine, Atropine and Silver Nitrate or Argyrol will be the most used. A spud for removing foreign bodies from the cornea, and a magnifying lens to focus light upon the eye are necessary. He should have an Ophthalmoscope and a small trial set of lenses, with reading charts. One hundred dollars or a little more would pay for the equipment, and it

would soon pay for itself in a financial way, not to speak of the service and satisfaction to the community.

There is one rule that should be rigidly adhered to in the treatment of eye troubles, and that is not to prescribe drugs until a diagnosis is made. It is always fair and much safer to use hot bathing and simple inert remedies, like saline or boracic solutions, until one can get to his text books to refresh his memory on a few points in differential diagnosis. Most of the text books have excellent illustrations which will help in deciding whether it is iritis or glaucoma to mention perhaps the most common difficulty the doctor has to decide upon. The observance of this rule will prevent two very common mistakes which cause very serious consequences, viz., the misuse of Atropine in glaucoma and leaving out Atropine in iritis and corneal ulcers.

FACULTY NOTES

Resignation of Dr. Drake

Graduating classes have lost a true friend in the resignation of Dr. T. G. H. Drake, from the office of Resident Physician in the Hospital for Sick Children. In the three years that he has held that position, his so generously proferred aid and capable advice have made him greatly esteemed by all senior students. The members of '26 wish him every success during both his time in England and subsequent career in Canada.

Medicine Honoured

The Medical Faculty has recently received two further honours. Prof. C. L. Starr has just returned from Harvard, where he had been invited to assume the Chair of Surgery for a period of two weeks, during the absence of Prof. Cushing in Europe.

Dean Primrose has just been awarded an honorary LL.D. by the University of Edinburgh.

Alumni Federation

The ten College or Faculty Associations composing the old University of Toronto Alumni Association, were incorporated in April, 1921, with a full-time Secretary-Treasurer and staff, and a board of directors, all graduates, prominent business and professional men, to compose the Alumni Federation.

Membership has risen during that time from about 400 to approximately 4000. This tremendous increase, however, while very encouraging, is not adequate for a University whose graduates number over 18,000. Our annual fee of $3.00 covers membership in the Medical Alumni Association and the Alumni Federation, as well as subscription to the *University of Toronto Monthly,* from October to June, a publication now ending its twenty-sixth consecutive year. The Alumni Fed-

eration nominates representatives to the Board of Governors, conducts a Bureau of Appointments for University men and women, administers the War Memorial Fund, from which the Soldiers' Tower was built and more than $165,000 lent to returned soldier students. Scholarships have now been established. It organizes local associations of graduates, assists in class and college re-unions and distributes interesting information, partly in the form of lectures, on University policies, problems and progress.

A Blue Book, to be subsequently published, containing the names and addresses of all graduates, such as other universities put out, is a very desirable aquisition and of particular value when travelling or to those endeavouring to arrange class functions.

To the graduating year the Alumni offer at $1.00, the cost of publication of the *Monthly,* free membership for the first year. It is to be hoped that all who are graduating will take advantage of this opportunity to give the organization well-merited support.

Medical Graduation Dinner

The annual Graduation Dinner was held at the Carls-Rite Hotel on Saturday, March the 20th, at 7.00 p.m. Several Surgical Supply Houses generously provided a number of very useful souvenirs for the occasion. The large assemblage thoroughly enjoyed the excellent meal and the various features, particularly two very interesting papers presented by members of the year, the presentation of the Athletic Stick and addresses to the Graduating Class by Judge H. S. Mott and Dr. W. Libby. Bracelets were presented to the ladies of the Secretary's office, as tokens of the indebtedness of the class to them for the many kindnesses shown during the six years.

The University Settlement

The University Settlement at Peter and Adelaide Streets is not, perhaps, as well known to medical students as it should be. It was started 16 years ago by Sir Robert Falconer and an interested group on the staff of the University. Under their continued direction it has become one of the most successful social service organizations in Toronto.

The Settlement has an average monthly attendance at its seventeen clubs of over 4,000, and the work is carried on by 4 resident workers, with the assistance of some 170 student volunteers and a number of University graduates and sympathizers.

In its early days the Settlement conducted a free weekly clinic, and several of the then junior, but now senior, members of our Medical Faculty were regular clinicians. The City Health Department has removed the need for such clinics, and the health work of the Settlement is now confined to a weekly baby clinic. This is only one of the many ways in which it serves its district, but lack of space precludes a more detailed account.

The Settlement is now facing a crisis. The property has been sold by the owners for conversion into a factory, and it is necessary to move

to new quarters by May 6th. A suitable house has been found on the corner of Grange Rd. and John St., but it can, however, only be secured by purchase. A sum of $25,000 is required to cover cost of purchase, alterations and the erection of a small hall.

The Board of Directors is now attempting to raise this sum, and, with the hearty approval of the Joint Executive of the Students' Administrative Council, it has asked the students to share in the task.

No Faculty realizes better than ours, the need of the community for the kind of service which our Settlement gives, and Medical students will be second to none in the readiness with which they respond to the Board's request.

Medical Athletic Society

Waterpolo

Tom Flummerfelt, Haegar Hetherington and Ross Tilley made the University Waterpolo Team. Varsity, although losing the championship, staged a great comeback at Hart House, these men playing an important part.

Athletic Stick

Les W. Black was awarded the Athletic Stick, at the Graduation Dinner, as being the one who had done most to bring honour to the University and Medicine in athletics. The selection must have been difficult, when one considers that one-quarter of the first T's held by undergraduates of this University belong to members of '26. It is,

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Applications for both these offices will be received by H. E. Rykert, Secretary-Treasurer, Medical Society, until April 15th, 1926.

therefore, all the more credit to Les Black, to have been chosen from amongst such a field of athletes. His record has been brilliant all the way through. In boxing he was interfaculty champion for five years, intercollegiate champion five years, city champion two years, Canadian middleweight champion two years, and over in the States he was undefeated as International Intercollegiate 158 lb. champion for two years. He wound up his career in boxing by representing Canada at the Olympics in 1924. In them he won right through to the semi-finals, when he lost the decision by a narrow margin.

Since his retirement from active boxing he has managed the team for the past two years. In rugby he played for Senior Meds last year. In walking he won the interfaculty—and this year he represented Varsity in the javelin throw—thus aiding in bringing to Varsity the championship for the first time since 1914. He was a member of the Athletic Directorate for one year. Congratulations, Les!

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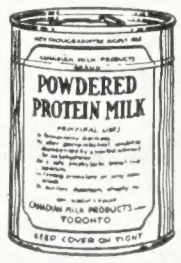

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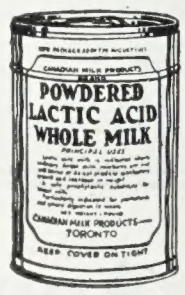

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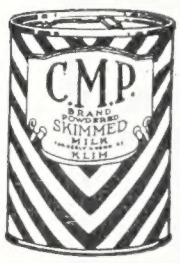

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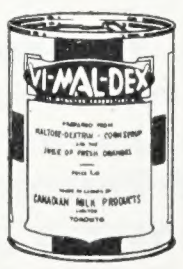

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